V2478

Report Number NCAP-TRC-97-002

New Car Assessment Program (NCAP)
Frontal Barrier Impact Test

General Motors Corporation

1997 Chevrolet Blazer

4-door mpv

NHTSA Number: MV0105

TRC Test Number: 961212

Prepared By:

Transportation Research Center Inc.

10820 State Route 347

East Liberty, OH 43319

January 9, 1997

Final Report

Prepared For:

U. S. Department of Transportation

National Highway Traffic Safety Administration

Performance Standards,

Office of Crashworthiness Standards,

Motor Vehicle Information Division

Mail Code: NPS-22

400 Seventh Street, S.W., Room 5315

Washington, DC 20590

This Final Test Report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, under Contract Number DTNH22-96-D-22010. This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The United States Government assumes no liability for its contents or use thereof.

This publication is distributed by the U. S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufacturers' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

Report prepared by:

Date 1/25/97

Jeffery W. Sankey, Manager, Project Operations
Transportation Research Center Inc.

Report approved by:

Date 1/27/97

John C. Stultz, Manager, Technical Development
Transportation Research Center Inc.

Final report accepted by:

Date 4/1/97

Manager, New Car Assessment Program
NHTSA, Office of Market Incentives

Date 4/1/97

Contracting Officer's Technical Representative (COTR),
NHTSA, Office of Market Incentives

Technical Report Documentation Page

1. Report No. NCAP-TRC-97-002	2. Government Accession No.	3. Recipient's Catalog No.
4. Title and Subtitle Final Report of New Car Assessment Program (NCAP) Frontal Barrier Impact Test of a 1997 Chevrolet Blazer mpv, NHTSA No. MV0105		5. Report Date January 9, 1997 6. Performing Organization Code TRC
7. Author(s) Jeffery W. Sankey, Manager, Project Operations		8. Performing Organization Report No. NCAP-TRC-97-002
9. Performing Organization Name and Address Transportation Research Center Inc. 10820 State Route 347 East Liberty, OH 43319-0367		10. Work Unit No. (TRAIS) 11. Contract or Grant No. DTNH22-96-D-22010
12. Sponsoring Agency Name and Address U. S. Department of Transportation National Highway Traffic Safety Administration Performance Standards., Office of Crashworthiness Standards; Motor Vehicle Information Division, Mail Code NPS-22, 400 Seventh Street, S. W., Room 5315, Washington, DC 20590		13. Type of Report and Period Covered Final Report December 1996-January 1997 14. Sponsoring Agency Code NPS-22
15. Supplemental Notes		

16. Abstract

A 56 kph (35 mph) frontal load cell barrier impact test was conducted on a 1997 Chevrolet Blazer mpv, NHTSA No. MV0105, at Transportation Research Center Inc. on December 12, 1996. This test was conducted in accordance with Office of Crashworhtiness Standards NCAPTP090196 for the determination of vehicle crashworthiness. The barrier impact velocity was 56.3 kph. The vehicle's maximum static crush was 649 millimeters. The ambient temperature was 22° C.

The driver's Head Injury Criteria (HIC) was 595. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 56.7 g. The driver's maximum chest deflection was 27 millimeters. The driver's left and right femur maximum axial forces were 3871 N and 7004 N, respectively.

The passenger's HIC was 1525. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 49.1 g. The passenger's maximum chest deflection was 44 millimeters. The passenger's left and right femur maximum axial forces were 1048 N and 2598 N, respectively.

17. Key Words	18. Distribution Statement
56 kph (35 mph) Frontal Barrier Impact Test: New Car Assessment Program (NCAP)	Copies of this report are available from: National Highway Traffic Safety Admin. Technical Reference Division 400 Seventh Street, S. W., Room 5108 Washington, DC 20590

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. Number of Pages	22. Price
Unclassified	Unclassified	398	

Form DOT F 1700.7 (8-72) Reproduction of completed page authorized

METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
		AREA		
in^2	square inches	6.5	square centimeters	cm^2
ft^2	square feet	0.09	square meters	m^2
yd^2	square yards	0.8	square meters	m^2
mi^2	square miles	2.6	square kilometers	km^2
	acres	0.4	hectares	ha
		MASS (weight)		
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
		VOLUME		
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft^3	cubic feet	0.03	cubic meters	m^3
yd^3	cubic yards	0.76	cubic meters	m^3
		TEMPERATURE (exact)		
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

*1 in ≡ 2.54 (exactly). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price $2.25, SD Catalog No. C13.10:286.

Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
		AREA		
cm^2	square centimeters	0.16	square inches	in^2
m^2	square meters	1.2	square yards	yd^2
km^2	square kilometers	0.4	square miles	mi^2
ha	hectares (10,000 m^2)	2.5	acres	
		MASS (weight)		
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
		VOLUME		
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m^3	cubic meters	35	cubic feet	ft^3
m^3	cubic meters	1.3	cubic yards	yd^3
		TEMPERATURE (exact)		
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F

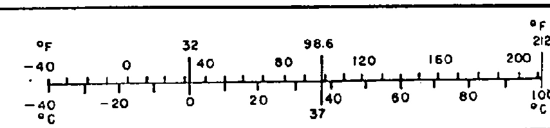


Table of Contents

List of Tables

List of Figures

List of Photographs

List Of Photographs, Cont'd.

List Of Photographs, Cont'd.

Section 1.0

Purpose and Test Procedure

<u>Purpose</u>

This 56 kph (35 mph) frontal barrier impact test is part of the New Car Assessment Program (NCAP) conducted for the National Highway Traffic Safety Administration's (NHTSA) Office of Crashworthiness Standards by Transportation Research Center Inc. (TRC) under Contract Number DTNH22-96-D-22010.

The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for the subject vehicle, a 1997 Chevrolet Blazer mpv, NHTSA Number MV0105, at an impact speed in excess of the current 48 kph (30 mph) FMVSS 208, 212, 219, and 301 requirements.

Test Procedure

This 56 kph (35 mph) test was conducted in accordance with NHTSA's Office of Crashworthiness Standards Laboratory Indicant Test Procedure, NCAPTP090196. Data was obtained indicant of FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Retention"; FMVSS 219, "Windshield Zone Intrusion"; and FMVSS 301, "Fuel System Integrity," performance.

The test vehicle was instrumented with nine (9) accelerometers to measure longitudinal axis accelerations. The driver's and passenger's restraint systems were instrumented with load cells to measure lap and shoulder belt forces and potentiometers to measure shoulder belt stretch and spoolout. The vehicle impacted a frontal load cell barrier instrumented with thirty-six (36) barrier face load cells. The vehicle's specified impact velocity range was 55.5 to 57.1 kph.

The test vehicle contained two (2) Part 572E 50th percentile adult male anthropomorphic test devices (dummies). The dummies were positioned in the front outboard designated seating positions according to the dummy placement procedures specified in Appendix B of the Laboratory Indicant Test Procedure. This test was the second use of the driver dummy and the passenger dummy.

Both dummies were instrumented with primary and redundant head and chest accelerometers to measure longitudinal, lateral, and vertical accelerations, and with left and right femur load cells to measure axial forces. The dummies were also instrumented with neck moment and force load cells, chest deflection potentiometers, foot accelerometers to measure longitudinal and vertical axis accelerations, and upper and lower tibia load cells to measure forces and moments.

The one-hundred-thirty-three (133) data channels were digitally sampled and recorded at 12,500 samples per second and processed per Section 11.13 of the Laboratory Indicant Test Procedure.

The crash event was recorded by one (1) real-time panning motion picture camera and sixteen (16) high-speed motion picture cameras. The pre- and post-test conditions were recorded by one (1) real-time motion picture camera.

The vehicle, occupant, and load cell barrier data are presented in Section 2.0. The occupant, camera, and vehicle measurements are presented in Section 3.0. Appendix A contains the still photographic prints. Appendix B contains the dummy, vehicle, and load cell barrier data plots. Appendix C contains the dummy certification data. Appendix D contains miscellaneous test information. Appendix E contains the restraint system instructions from the owner's manual.

Section 2.0

Frontal Barrier Impact Test Summary

Test Results Summary

This frontal load cell barrier test was conducted at TRC on December 12, 1996.

The test vehicle, a 1997 Chevrolet Blazer mpv, NHTSA Number MV0105, was equipped with a 4.3-liter inline engine, automatic transmission, power steering, and power brakes. The vehicle's test weight was 2107 kg. The vehicle's impact speed was 56.3 kph. The vehicle sustained 649 mm of static crush during the impact.

The driver's Head Injury Criteria (HIC) was 595. The driver's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 56.7 g. The driver's maximum chest deflection was 27 mm. The driver's left and right femur maximum axial forces were 3871 N and 7004 N, respectively.

The right front passenger's HIC was 1525. The passenger's chest maximum resultant acceleration with three (3) milliseconds minimum duration was 49.1 g. The passenger's maximum chest deflection was 44 mm. The passenger's left and right femur maximum axial forces were 1048 N and 2598 N, respectively.

There was no loss of windshield periphery retention.

There was no penetration through the windshield.

Following the impact, 1246.7 grams of fluid spilled from the vehicle's fuel tank seam prior to the static rollover test and during the static rollover test.

<u>Data Acquisition Explanations</u>

The driver dummy's left foot at toe Z-axis acceleration data channel, FTLZT1, recorded questionable data throughout the impact due to a cable problem

The vehicle's engine bottom X-axis acceleration data channel, ENGXG2, lost data after approximately 60 milliseconds due to the vehicle's crush cutting the accelerometer cable.

The vehicle's left brake caliper X-axis acceleration data channel, BCLXG1, lost data after approximately 40 milliseconds due to the vehicle's crush cutting the accelerometer cable.

Table 1 Crash Test Summary

NHTSA number:	MV0105	
Test type:	Frontal Load Cell Barrier	
Test date:	12/12/96	
Test time:	1622	
Ambient temperature:	22° C	
Vehicle year/make/ model/body style:	1997/Chevrolet/Blazer/mpv	
Vehicle test weight:	2107 kg	
Impact angle[1]:	0°	
Impact velocity[2]:	Primary = 56.3 kph Secondary = 56.3 kph	
Maximum static crush:	649 mm	
Average rebound:	174 mm	
Dummies:	Driver #142	Passenger #192
Type:	Part 572 E	Part 572 E
Location:	Left front	Right front
Restraint:	Airbag and 3-point belt	3-point belt
Number of data channels:	40	40
Number of cameras:	High-speed 16 Real-time 1	

[1] With respect to tow track centerline.
[2] Speed trap measurement (± .08 kph accuracy)

Table 2 Test Vehicle Information

Vehicle year/make/ model/body style:	1997/Chevrolet/Blazer/mpv		
Color:	Red		
VIN:	1GNDT13W6VK152284		
NHTSA number:	MV0105		
Engine data:			
Placement:	Inline		
Cylinders:	6		
Displacement	4.3 liters		
Transmission data:	_4_ speed, ___manual, _X_ automatic, ___overdrive		
	_X_ FWD, ___RWD, ___4WD		
Date vehicle received:	12/06/96		
Odometer reading:	53		
Dealer's name and address:	Quality Chevrolet, Inc. 3101 Morse Rd. Columbus, OH 43231		

Accessories:

Power steering	Yes	Automatic transmission	Yes
Power brakes	Yes	Automatic speed control	Yes
Power seats	No	Tilting steering wheel	Yes
Power windows	No	Telescoping steering wheel	No
Tinted glass	Yes	Air conditioning	Yes
Radio	Yes	Anti-skid brake	Yes
Clock	Yes	Rear window defroster	No
Other	None		

Certification data from vehicle's label:

Vehicle manufactured by:	General Motors Corporation
Date of manufacture:	11/96
VIN:	1GNDT13W6VK152284
GVWR:	2404 kg
GAWR: Front:	1225 kg
Rear:	1225 kg

Table 2 Test Vehicle Information, Cont'd.

Size of tires:	P205/75R15
Tire pressure with maximum capacity vehicle load:	
Front:	240 kPa
Rear:	240 kPa
Spare tire:	Temporary
Type of front seats:	Split bench

Tire & capacity data from vehicle's label:

Recommended tire size:	P205/75R15
Recommended cold tire pressure:	
Front:	240 kPa
Rear:	240 kPa

Designated seating capacity:	
Front	3
Rear	3
Rear	6
Total	NA

Vehicle capacity weight:	NA

Test vehicle attitude:

Delivered attitude:	LF 813 mm;	RF 801 mm;	LR 847 mm;	RR 836 mm
Pre-test attitude:	LF 801 mm;	RF 785 mm;	LR 809 mm;	RR 793 mm
Post-test attitude:	LF 840 mm;	RF 798 mm;	LR 788 mm;	RR 807 mm

Table 2 Test Vehicle Information Cont'd

Weight of test vehicle as received (with maximum fluids):

Right front	562	kg	Right rear	426	kg
Left front	463	kg	Left rear	375	kg
Total front weight	1025	kg	(56.1% of total vehicle weight)		
Total rear weight	801	kg	(43.9% of total vehicle weight)		
Total delivered weight	1826	kg			

Calculation of test vehicle's target test weight:

RCLW[1] = Rated cargo and luggage weight

GVWR = Gross Vehicle Weight Rating (2404 kg)

UDW = Unloaded delivered weight (1826 kg)

VCW = Vehicle capacity weight = GVWR - UDW = 2404 - 1826 = 578 kg

DSC = Designated seating capacity (6)

RCLW[1] = GVWR - UDW - 68 (DSC) = 2404 - 1826 - 68(6) = 170 kg

Target test weight = UDW + RCLW[1] + (Number of Hybrid III dummies x 76 kg/dummy)

Target test weight = 1826 + 136 + 152 = 2114 kg

Target test weight = 2114 kg

Weight of test vehicle with required dummies and 129 kg of cargo weight:

Right front	513	kg	Right rear	541	kg
Left front	572	kg	Left rear	481	kg
Total front weight	1085	kg	(51.5% of total vehicle weight)		
Total rear weight	1022	kg	(48.5% of total vehicle weight)		
Total test weight	2107	kg	(0.3% under target test weight)		

Weight of ballast secured in vehicle: 18 kg behind right front passenger's seat

Components removed to meet target test weight: None

CG rearward of front wheel centerline: 1327 mm

[1] Cargo weight for multipurpose passenger vehicles, trucks, and buses is the vehicle's rated cargo and luggage weight from the vehicle's label or 136 kilograms, whichever is less.

Table 3 Post-Impact Data

Test number:	961212
NHTSA number:	MV0105
Test date:	12/12/96
Test time:	1622
Test type:	Frontal load cell barrier
Impact angle:	0°
Ambient temperature at impact area:	22° C
Temperature in occupant compartment:	22° C
Impact velocity:	
Primary	56.3 kph
Secondary	56.3 kph
Specified range	55.5 to 57.1 kph

Distance from vehicle to barrier:

Entering velocity trap	356 mm
Exiting velocity trap	51 mm

Test vehicle static crush:

Overall length of test vehicle:

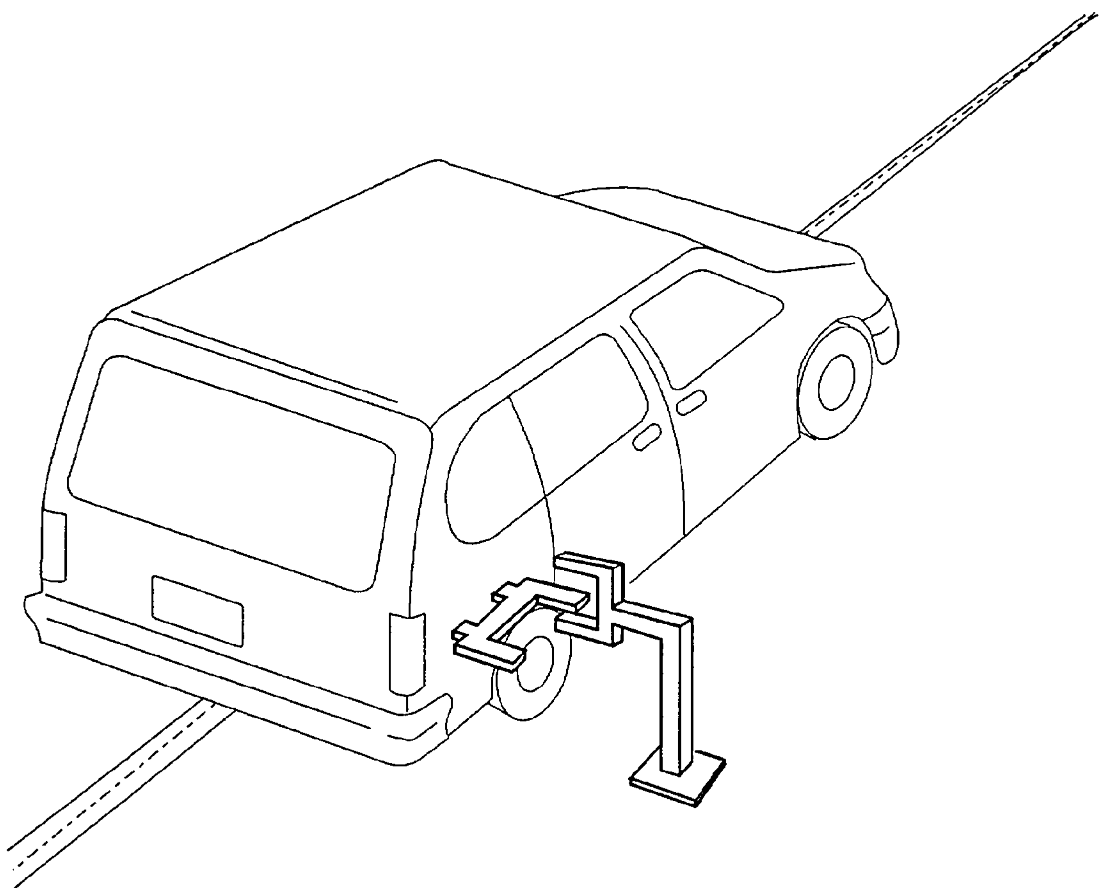
Pre-test:	L	4435 mm;	C	4587 mm;	R	4450 mm
Post-test:	L	3950 mm;	C	3938 mm;	R	3962 mm
Total crush:	L	485 mm;	C	649 mm;	R	488 mm
Average crush:	541 mm					

Test vehicle rebound from flat barrier:

Distance from test vehicle to barrier:

Post-test:	L	199 mm;	C	134 mm;	R	190 mm
Average rebound	174 mm					

Figure 1 Impact Velocity Measurement System

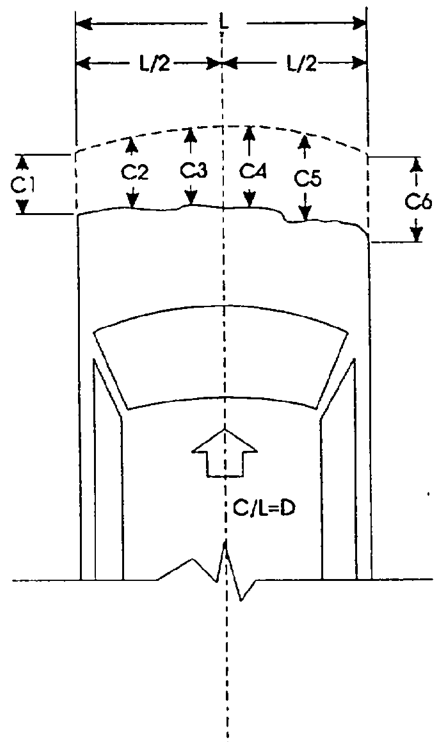


The final vane clears the final emitter/receiver pair 51 millimeters before impact.

The vanes have 305-millimeter spacing.

Figure 2 Accident Investigation Division Data
for 56 kph (35 mph) Frontal Barrier Impact

NHTSA number:	MV0105
Test date:	12/12/96
Vehicle year/make/ model/body style:	1997/Chevrolet/Blazer/mpv
Vehicle size category:	Special purpose
VIN:	1GNDT13W6VK152284
Build date:	11/96
Test weight:	2107 kg
Vehicle wheelbase:	2735 mm
Maximum width:	1697 mm
Front overhang:	912 mm



Collision Deformation Classification (CDC) code: 12FDEW3

Crush depth measurements:

C1 = 485 mm

C2 = 553 mm

C3 = 623 mm

C4 = 621 mm

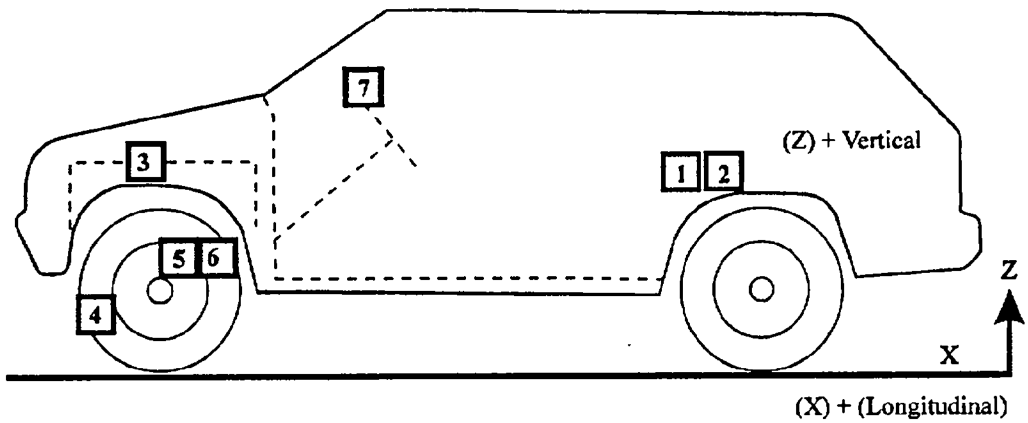
C5 = 566 mm

C6 = 488 mm

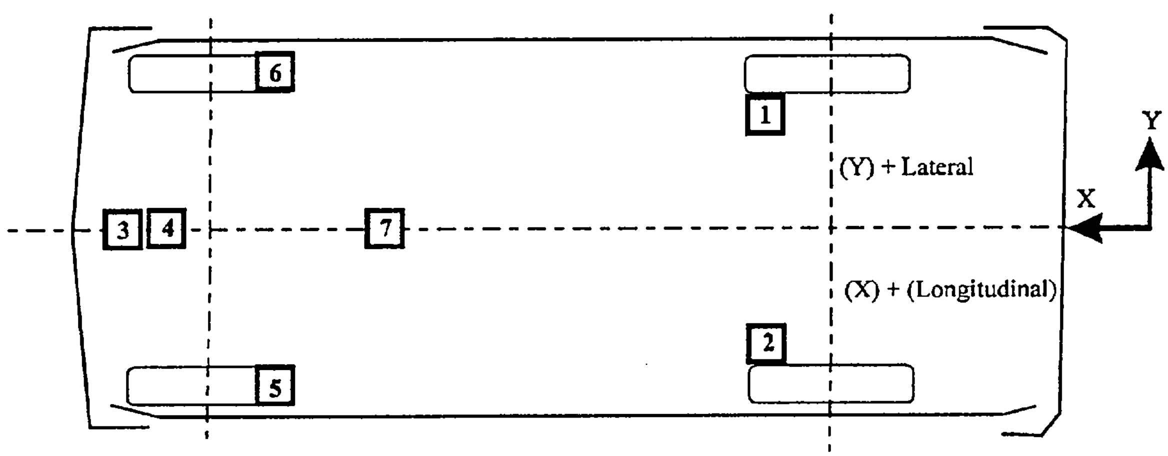
Midpoint of damage: D: Vehicle Longitudinal Centerline

Length of damaged region: L: 1472 mm

Figure 3 Vehicle Accelerometer Placement



Side View



Bottom View

Table 4 Vehicle Accelerometer Locations and Data Summary

TEST NUMBER: 961212

No. LOCATION	X	Y	Z	POSITIVE DIRECTION		NEGATIVE DIRECTION	
1 LEFT REAR SEAT CROSSMEMBER LONGITUDINAL	1780 mm	580 mm	480 mm	2.6 g	@ 149.9 ms	37.4 g	@ 57.8 ms
2 RIGHT REAR SEAT CROSSMEMBER LONGITUDINAL	1733 mm	-575 mm	480 mm	2.3 g	@ 151.8 ms	36.6 g	@ 57.6 ms
3 ENGINE TOP LONGITUDINAL	3715 mm	200 mm	915 mm	48.8 g	@ 49.7 ms	163.0 g	@ 42.9 ms
4 ENGINE BOTTOM LONGITUDINAL[1]	3565 mm	-15 mm	227 mm	---	---	---	---
5 RIGHT BRAKE CALIPER LONGITUDINAL	3620 mm	-630 mm	356 mm	41.5 g	@ 62.6 ms	111.1 g	@ 50.2 ms
6 LEFT BRAKE CALIPER LONGITUDINAL[1]	3620 mm	630 mm	356 mm	---	---	---	---
7 INSTRUMENT PANEL CENTER LONGITUDINAL	3047 mm	-12 mm	1190 mm	7.1 g	@ 109.4 ms	64.2 g	@ 67.9 ms
8 LEFT REAR SEAT CROSSMEMBER REDUNDANT LONGITUDINAL	1703 mm	580 mm	480 mm	2.4 g	@ 149.8 ms	37.3 g	@ 57.8 ms
9 RIGHT REAR SEAT CROSSMEMBER REDUNDANT LONGITUDINAL	1750 mm	-575 mm	480 mm	2.2 g	@ 151.8 ms	36.6 g	@ 57.6 ms

REFERENCE: X: + FORWARD ACCELERATION
Y: + LEFT FROM VEHICLE CENTERLINE
Z: + UP FROM GROUND LEVEL

[1] See DATA ACQUISITION EXPLANATIONS

Table 5 Post-Impact Dummy/Vehicle Data

Visible Dummy Contact Points:

	Driver #142	Passenger #192
Head	Airbag	Chest
Chest	Airbag	None
Abdomen	None	None
Left knee	Instrument panel	Instrument panel
Right knee	Instrument panel	Instrument panel

Door Opening:

	Left	Right
Front	Needed torch	Needed torch
Rear	Easy	Easy

Seat Movement:

	Seat Back Failure	Seat Shift
Front	None	None
Rear	NA	NA

Glazing Damage: The entire windshield cracked on impact.

Other Notable Impact Effects: None

Table 6 FMVSS 208 Data Summary

Vehicle year/make/model/body style: 1997/Chevrolet/Blazer/mpv

Vehicle NHTSA number: MV0105

Test date: 12/12/96

	Driver Dummy #142		Passenger Dummy #192	
Maximum Accelerations:				
Head X-axis	-58.5	g	-108.5	g
Head Y-axis	30.9	g	-47.4	g
Head Z-axis	-47.2	g	-67.9	g
Head resultant	64.8	g	126.5	g
Chest X-axis	-58.5	g	-49.4	g
Chest Y-axis	5.4	g	-10.1	g
Chest Z-axis[1]	8.6	g	-17.8	g
Chest resultant[2]	56.7	g	49.1	g
Chest resultant time interval[2]	.003	sec	.003	sec
Head Injury Criteria (HIC) Values:				
HIC[3]	595		1525	
HIC starting time	.0568	sec	.0753	sec
HIC ending time	.0925	sec	.1113	sec
Average head resultant acceleration during HIC time interval	48.8	g	70.9	g
Maximum Chest Deflections:				
Chest X-axis	27	mm	44	mm
Maximum chest deflection time	.0599	sec	.0878	sec
Maximum Compressive Femur Forces:				
Left femur	3871	N	1048	N
Right femur	7004	N	2598	N
Maximum Seat Belt Forces:				
Lap belt	3590	N	8110	N
Shoulder belt	7826	N	8376	N

Note: All values listed must be occurring during primary impact event.
(Head accelerations listed must be during HIC time interval.)

[1] Passenger redundant acceleration data channel
[2] 0.003 Sec. Minimum duration.
[3] The maximum HIC time interval is 36 milliseconds.

Table 7 Hybrid III Data Summary

Vehicle year/make/
model/body style: 1997/Chevrolet/Blazer/mpv

Vehicle NHTSA number: MV0105

Test date: 12/12/96

	Driver Dummy #142	Passenger Dummy #192
Maximum Forces		
Neck X-axis shear force	1029 N	1604 N
Neck Y-axis shear force	318 N	446 N
Neck Z-axis axial force	3186 N	3011 N
Maximum Moments		
Neck moment about X-axis	-20.3 N·m	19.2 N·m
Neck moment about Y-axis	85.4 N·m	73.3 N·m
Neck moment about Z-axis	47.1 N·m	18.1 N·m
Maximum Accelerations:		
Pelvis X-axis	-62.4 g	-62.0 g
Pelvis Y-axis	13.3 g	-11.6 g
Pelvis Z-axis	19.2 g	27.7 g
Pelvis resultant	63.7 g	63.8 g

Table 7 Hybrid III Data Summary, Cont'd.

Vehicle year/make/
model/body style: 1997/Chevrolet/Blazer/mpv

Vehicle NHTSA number: MV0105

Test date: 12/12/96

	Driver Dummy #142	Passenger Dummy #192
Left upper tibia moment about X-axis	89.3 N·m	-98.9 N·m
Left upper tibia moment about Y-axis	144.3 N·m	155.8 N·m
Right upper tibia moment about X-axis	104.3 N·m	-84.9 N·m
Right upper tibia moment about Y-axis	176.9 N·m	149.4 N·m
Left lower tibia X-axis force	-1239 N	-1010 N
Left lower tibia Z-axis force	-3854 N	-2401 N
Left lower tibia moment about Y-axis	44.6 N·m	-105.5 N·m
Right lower tibia X-axis force	-1525 N	-1139 N
Right lower tibia Z-axis force	-4485 N	-2848 N
Right lower tibia moment about Y-axis	-180.2 N·m	-75.0 N·m
Left foot X-axis acceleration	-99.5 g	-113.5 g
Left foot Z-axis acceleration at heel	-118.9 g	-244.7 g
Left foot Z-axis acceleration at toe[1]	NA	-359.4 g
Right foot X-axis acceleration	236.5 g	-108.5 g
Right foot Z-axis acceleration at heel	-587.3 g	82.7 g
Right foot Z-axis acceleration at toe	-584.5 g	136.2 g

Note: All values listed must be occurring during primary impact event.

[1] See Data Acquisition Explanations

Dummy Kinematic Summary

Driver Dummy

Upon impact, the driver dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's head rotated forward as its head and chest impacted the airbag. The dummy was restrained by the airbag and three-point unibelt. The dummy rebounded rearward into the seat back and head restraint. The driver dummy came to rest seated in the driver's seat restrained by the three-point unibelt.

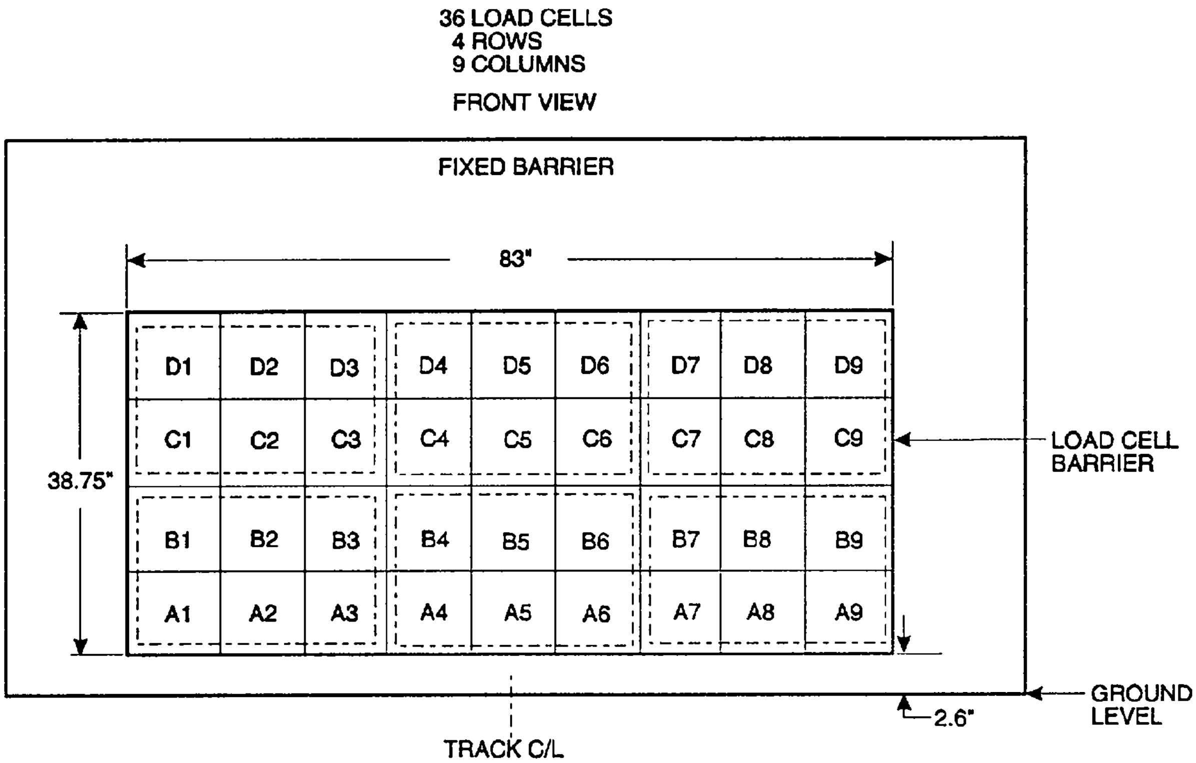
Right Front Passenger Dummy

Upon impact, the right front passenger dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's head rotated forward as the dummy was restrained by the three-point unibelt. The dummy's head rotated rearward into the head restraint as it rebounded into the seat back. The dummy then came to rest in the right front passenger's seat, restrained by the three-point unibelt.

Table 8 Seat Belt Performance Assessment Test Data

	Driver	Passenger
Belt length data:		
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems.	2695 mm	2615 mm
Shoulder belt length as measured on Part 572 dummy.	880 mm	900 mm
Lap belt length as measured on Part 572 dummy.	870 mm	850 mm
Shoulder belt spool-off length:		
As determined by film analysis	71 mm	109 mm
As determined mechanically	72 mm	90 mm
As determined electronically	317 mm	327 mm
Belt stretch length:		
As measured mechanically	0 mm/m	0 mm/m
As measured electronically	49 mm/m	89 mm/m
Retractor lock-up time:		
As determined by shoulder belt spool-off	69 ms	66 ms

Figure 4 Load Cell Barrier Configuration



Group 1: A1 through B3
Group 2: A4 through B6
Group 3: A7 through B9
Group 4: C1 through D3
Group 5: C4 through D6
Group 6: C7 through D9

Table 9 Load Cell Barrier Data Summary

Location	Positive direction	Negative direction
Total group 1	3.6 kN @ 4.2 ms	75.7 kN @ 14.4 ms
Total group 2	0.9 kN @ 162.7 ms	328.2 kN @ 38.6 ms
Total group 3	2.8 kN @ 3.6 ms	93.0 kN @ 14.7 ms
Total group 4	1.2 kN @ 3.3 ms	51.7 kN @ 18.8 ms
Total group 5	0.1 kN @ 290.6 ms	313.2 kN @ 41.4 ms
Total group 6	0.7 kN @ 3.4 ms	47.6 kN @ 24.5 ms
Total load cell force	0.3 kN @ 224.5 ms	820.9 kN @ 41.4 ms

Tension is positive
Compression is negative

Section 3.0

FMVSS 212, 219 (partial), and 301 Data

Figure 5 FMVSS 212 Test Data

Details of windshield mounting such as retention method, trim type, etc.:
Plastic trim around outer perimeter, adhesive around inner perimeter.

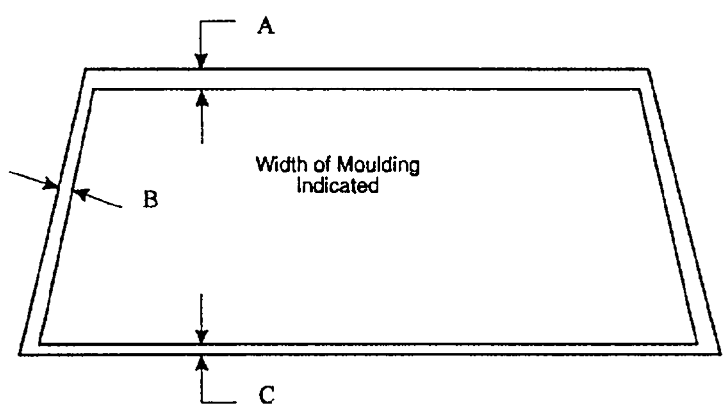
FMVSS 212 requirements: The post-test periphery retention amount must be at least 75% of the pre-test periphery measurement for vehicles NOT equipped with automatic restraints, and 50% for each side of windshield for vehicles equipped with automatic restraint systems for front occupants.

Windshield periphery measurements:

	Pre-test	Post-test	Percent retention
Right side	2120 mm	2120 mm	100
Left side	2120 mm	2120 mm	100
Total	4240 mm	4240 mm	100

Pre-test windshield mounting material temperature: 21° C

A = 17 mm
B = 17 mm
C = 17 mm



Front view of windshield[1]

Loss of windshield retention lengths: None

[1] Indicate areas of loss of retention, if any, on windshield diagram.

Figure 6 FMVSS 219 Test Data

Protected zone lower edge requirement:

The lower edge of the protected zone is determined by placing a 165-millimeter diameter rigid sphere weighing 6.8 kg in a position such that it simultaneously contacts the inner surface of the windshield and the top surface of the instrument panel including padding. Draw the locus of points on the inner surface of the windshield contactable by the sphere across the width of the instrument panel. From the outermost contactable points, extend the locus line horizontally to the edges of the windshield, and then draw a line on the inner surface of the windshield below and 13 millimeters from the locus line. The **lower edge of the protected zone** is the longitudinal projection onto the outer surface of the windshield of this line.

Windshield measurements:

A = 1282 mm

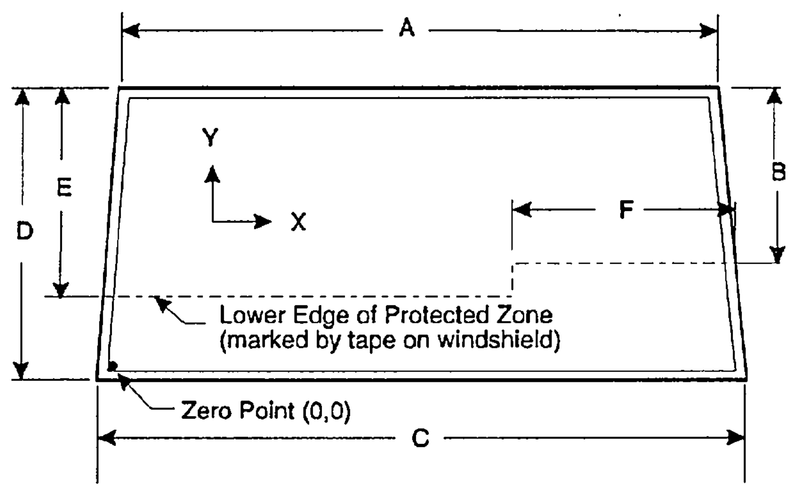
B = 399 mm

C = 1690 mm

D = 725 mm

E = 469 mm

F = 582 mm



FRONT VIEW

Method of adhering protected zone template to windshield: NA

Areas of windshield template penetration greater than 6 mm: NA

	Coordinates X	Y
1.		
2.		
3.		

Areas of windshield penetration, below the protected zone, through the inner surface of the windshield: None

1.
2.
3.

Table 10 Fuel System Data

Vehicle year/make/ model/body style:	1997/Chevrolet/Blazer/mpv
NHTSA number:	MV0105
Fuel system capacity:	72.0 liters (from owner's manual)
Usable capacity:	72.3 liters (furnished by COTR)
Test volume range:	66.6 liters to 68.0 liters (92-94% of usable)
Actual test volume:	67.0 liters (with entire fuel system filled)
Test fluid type:	Stoddard solvent
Specific gravity:	0.764
Kinematic viscosity:	0.99 centistoke
Test fluid color:	Purple
Did electric fuel pump operate with ignition switch "on" and the engine not operating.	No
Details of fuel system:	The fuel tank was located in front of the rear axle beside the left frame rail. The fuel filler neck was located on the left side and entered the rear of the tank. The fuel lines ran along the left frame rail.

Table 11 FMVSS 301 Post-Impact Test Data

NHTSA number: MV0105

Test date: 12/12/96

Vehicle year/make/
model/body style: 1997/Chevrolet/Blazer/mpv

Test requirements:

Test vehicle fuel tank filled to 92 to 94% of manufacturer's usable capacity and with electric fuel pump operating (if it will operate without engine operation). Part 572 test dummies located at each front designated seating position.

Test vehicle impact type:

_x_ Frontal (_56_ kph)

___ Oblique (48 kph) with __° barrier face first contacting ___ (driver/pass.) side

___ Rear moving barrier (48 kph)

___ Lateral moving barrier (32 kph)

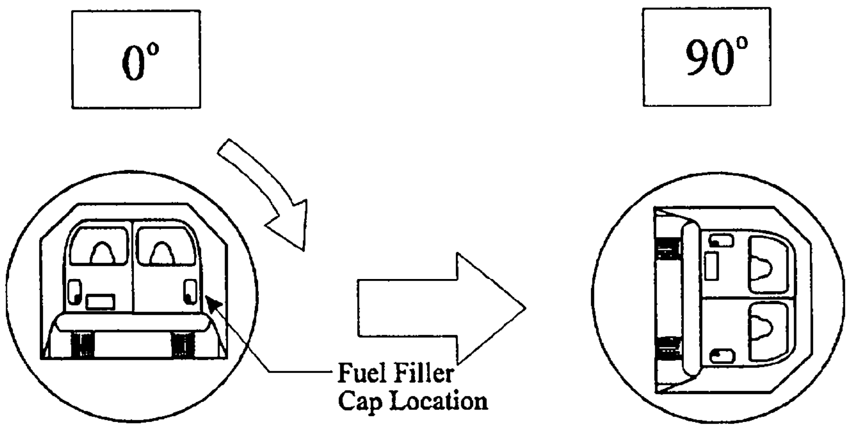
Fuel system fluid spillage measurements:

		Test Results	Maximum Allowable
1.	From impact until vehicle motion ceases	0 g	28 g
2.	5-minute period after vehicle motion ceases	107.3 g	142 g
3.	Next 25 minutes after 5-minute period	859.8 g	28 g/min

Fuel system fluid spillage location(s): Fuel tank seam

Figure 7 FMVSS 301 Static Rollover Test Data

NHTSA number: MV0105
Test phase



Static rollover machine rotation time information: (specified range is 1-3 minutes)

Time required for machine to rotate 90°	=	2 minutes,	0	seconds
FMVSS 301 position hold time	=	5 minutes,	0	seconds
Total	=	7 minutes,	0	seconds
Next whole minute interval	=	7 minutes		

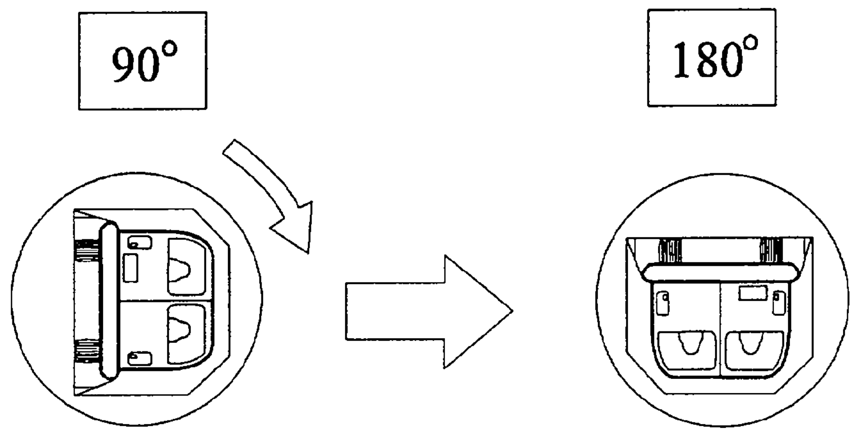
Fuel system fluid spillage measurements:

0° to 90° rotation (fuel filler cap down)		Test Results	Maximum Allowable
1.	First five minutes from onset of rotation	114.8 g	142 g
2.	Sixth minute from onset of rotation	0 g	28 g
3.	Seventh minute from onset of rotation	0 g	28 g

Fuel system fluid spillage location(s): Fuel tank seam

Figure 7 FMVSS 301 Static Rollover Test Data, Cont'd.

Test phase



Static rollover machine rotation time information: (specified range is 1-3 minutes)

Time required for machine to rotate 90°	=	2	minutes,	0	seconds
FMVSS 301 position hold time	=	5	minutes,	0	seconds
Total	=	7	minutes,	0	seconds
Next whole minute interval	=	14	minutes		

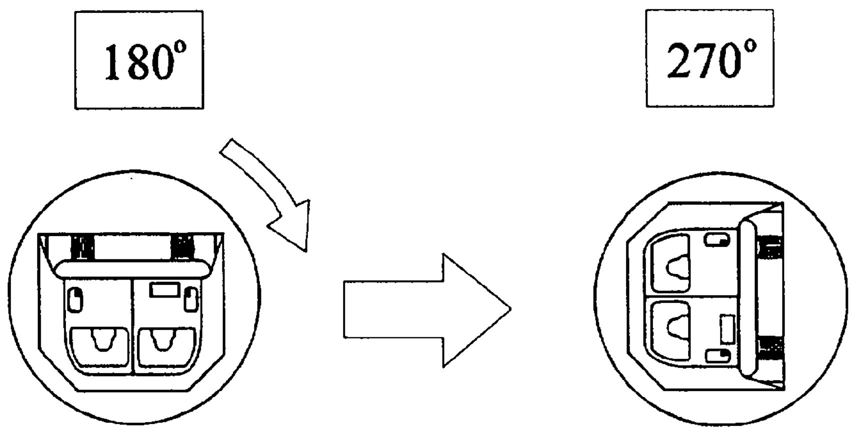
Fuel system fluid spillage measurements:

90° to 180° rotation	Test Results	Maximum Allowable
1. First five minutes from onset of rotation	0 g	142 g
2. Sixth minute from onset of rotation	0 g	28 g
3. Seventh minute from onset of rotation	0 g	28 g

Fuel system fluid spillage location(s): Fuel tank seam

Figure 7 FMVSS 301 Static Rollover Test Data, Cont'd.

Test phase



Static rollover machine rotation time information: (specified range is 1-3 minutes)

Time required for machine to rotate 90°	= 2	minutes,	0 seconds
FMVSS 301 position hold time	= 5	minutes,	0 seconds
Total	= 7	minutes,	0 seconds
Next whole minute interval	= 21	minutes	

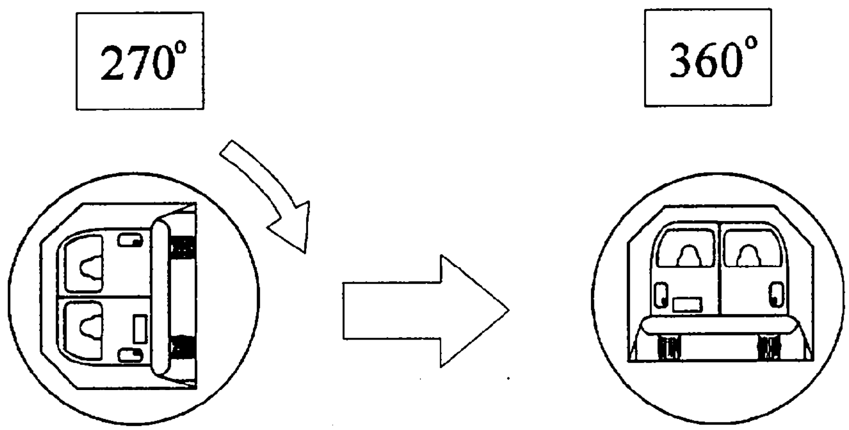
Fuel system fluid spillage measurements:

180° to 270° rotation	Test Results	Maximum Allowable
1. First five minutes from onset of rotation	62.2 g	142 g
2. Sixth minute from onset of rotation	1.1 g	28 g
3. Seventh minute from onset of rotation	6.9 g	28 g

Fuel system fluid spillage location(s): Fuel tank seam

Figure 7 FMVSS 301 Static Rollover Test Data, Cont'd.

Test phase



Static rollover machine rotation time information: (specified range is 1-3 minutes)

Time required for machine to rotate 90°	=	2	minutes,	0	seconds
FMVSS 301 position hold time	=	5	minutes,	0	seconds
Total	=	7	minutes,	0	seconds
Next whole minute interval	=	28	minutes		

Fuel system fluid spillage measurements:

270° to 360° rotation	Test Results	Maximum Allowable
1. First five minutes from onset of rotation	59.0 g	142 g
2. Sixth minute from onset of rotation	24.8 g	28 g
3. Seventh minute from onset of rotation	10.8 g	28 g

Fuel system fluid spillage location(s): Fuel tank seam

Section 4.0

Occupant, Camera, and Vehicle Information

<u>Figure 8 Dummy Measurement Locations for Front Seat Occupants</u>

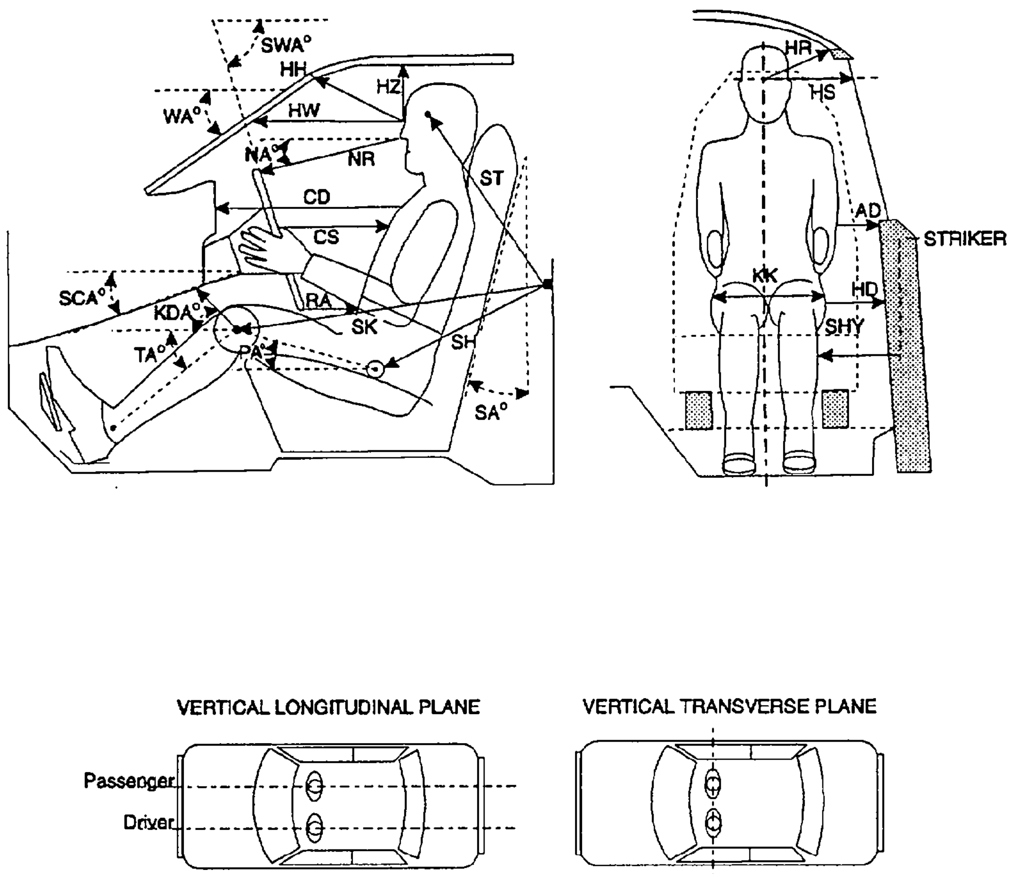


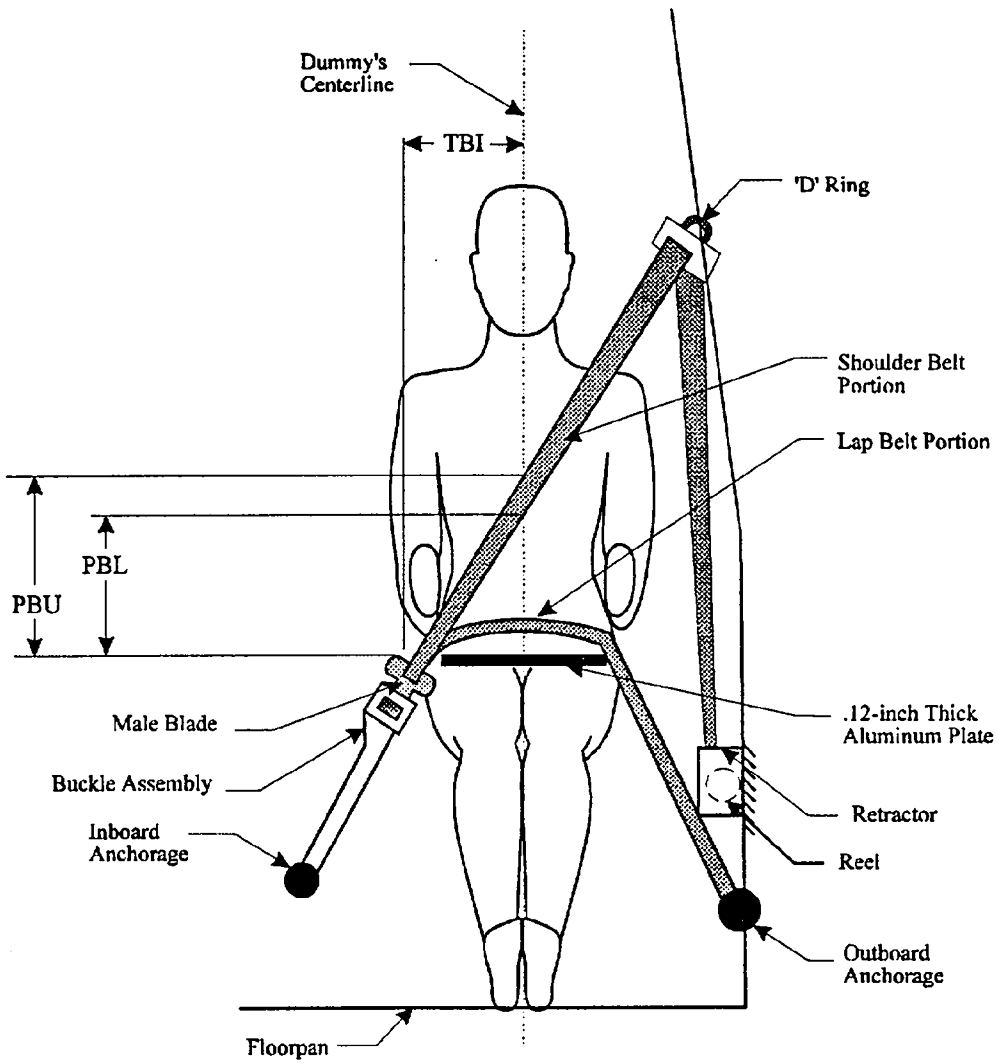
Table 12 Dummy Measurement Data For Front Seat Occupants

Designation	Type of Measurement	Driver (Serial #142)	Passenger (Serial #192)
WA	Windshield angle	35°	35°
SWA	Steering wheel angle	75°	NA
SCA	Steering column angle	15°	NA
SA	Seat back angle	23°	23°
HZ	Head to roof	136 mm	135 mm
HH	Head to header	456 mm	492 mm
HW	Head to windshield	623 mm	633 mm
HR	Head to side header	255 mm	269 mm
NR	Nose to rim	321 mm	NA
NA	Nose to rim angle	11°	NA
CD	Chest to dash	505 mm	559 mm
CS	Steering wheel to chest	270 mm	NA
RA	Rim to abdomen	151 mm	NA
KDL	Left knee to dash	185 mm	205 mm
KDR	Right knee to dash	163 mm	199 mm
KDA	Outboard knee to dash angle	35°	25°
PA	Pelvic angle	24°	24°
TA	Tibial angle	38°	45°
KK	Knee to knee	280 mm	268 mm
ST[1]	Striker to head	556 mm	534 mm
	Striker to head angle	-71°	-76°
SK[1]	Striker to knee	702 mm	705 mm
	Striker to knee angle	-1°	2°
SH[1]	Striker to H-point	355 mm	337 mm
	Striker to H-point angle	24°	17°
SHY	Striker to H-point (Y dir.)	217 mm	203 mm
HS	Head to side window	354 mm	360 mm
HD	H-point to door	142 mm	147 mm
AD	Arm to door	138 mm	123 mm

The seat back angle (SA°) is measured relative to vertical, all other angles are measured relative to horizontal.

[1] A negative angle indicates the measurement point was above the striker.

Figure 9 Seat Belt Positioning Data



	Driver	Passenger
PBU - Top surface of aluminum plate to belt upper edge	315 mm	259 mm
PBI - Top surface of aluminum plate to belt lower edge	240 mm	185 mm
TBI - Dummy centerline to intersection of upper torso belt and lap belt	230 mm	208 mm

Figure 10 Camera Positions

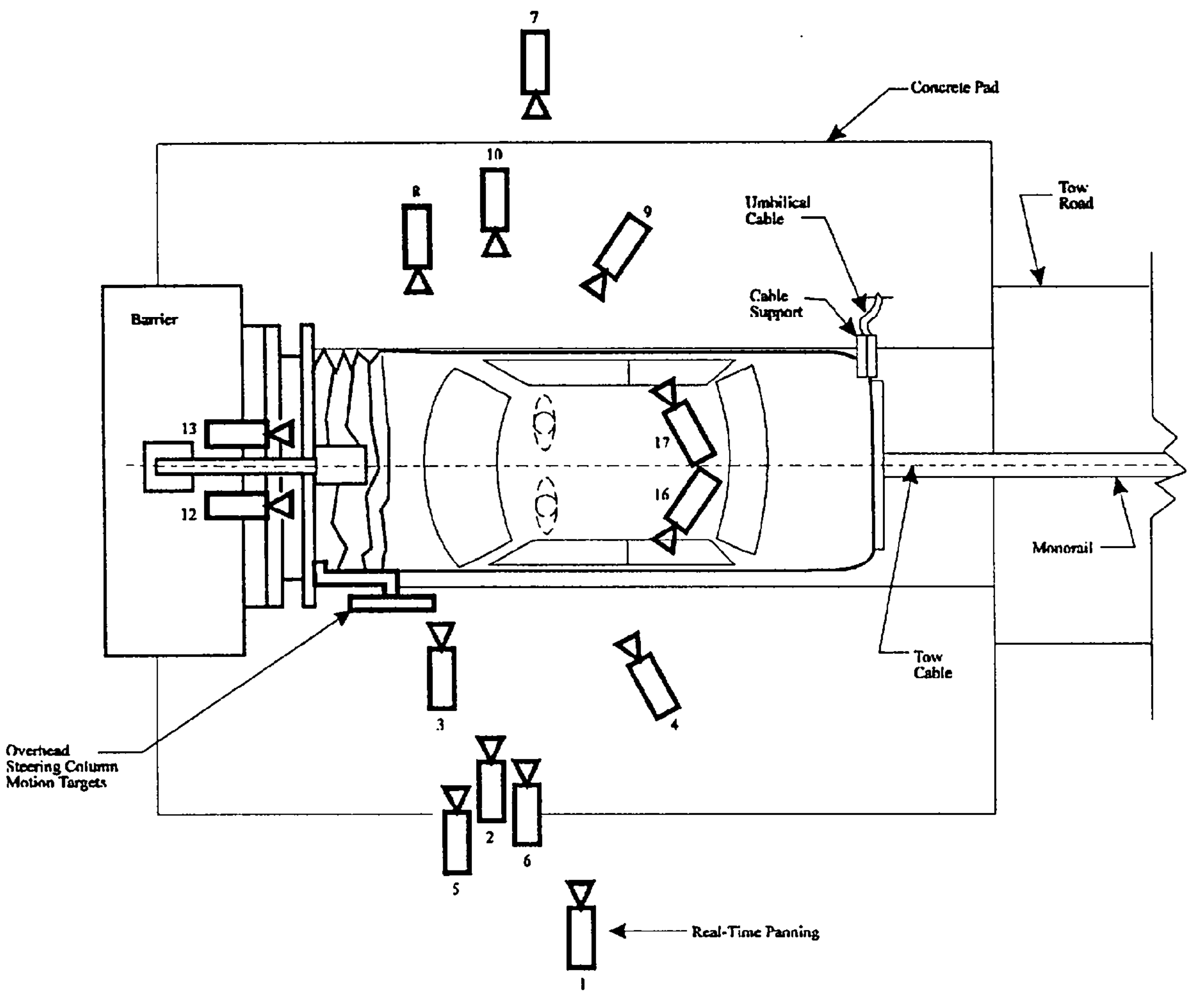


Figure 10 Camera Positions, Cont'd.

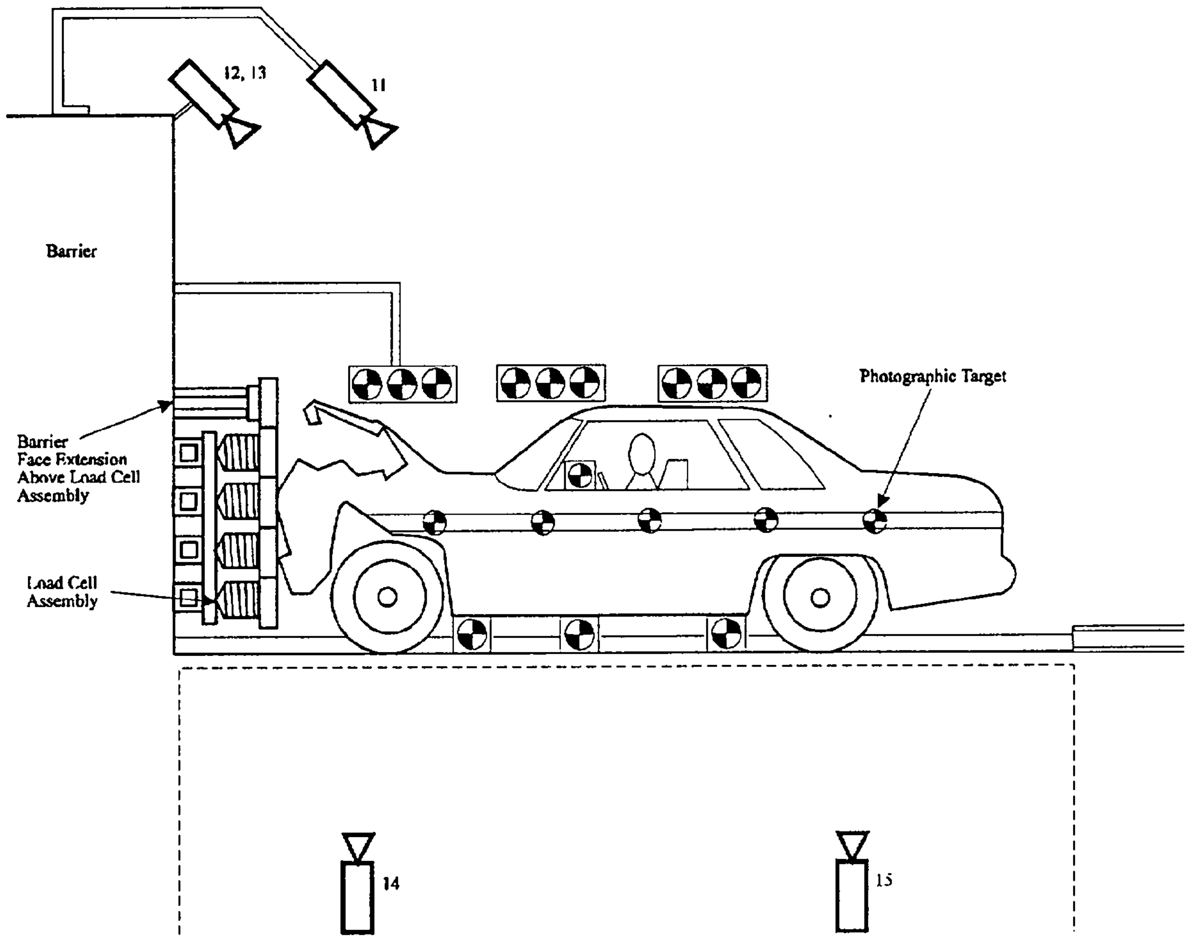


Table 13 Motion Picture Camera Locations

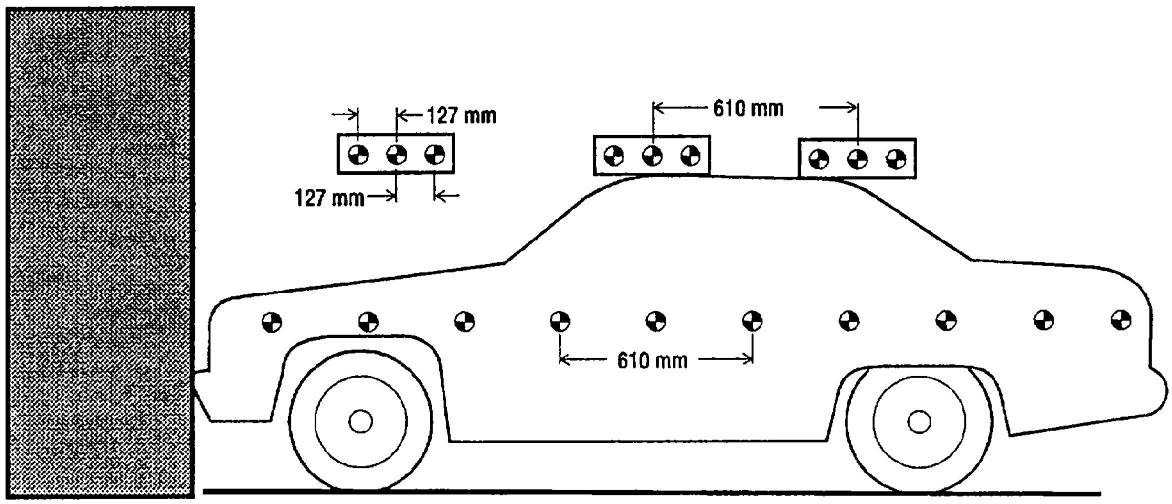
Test Number: 961212

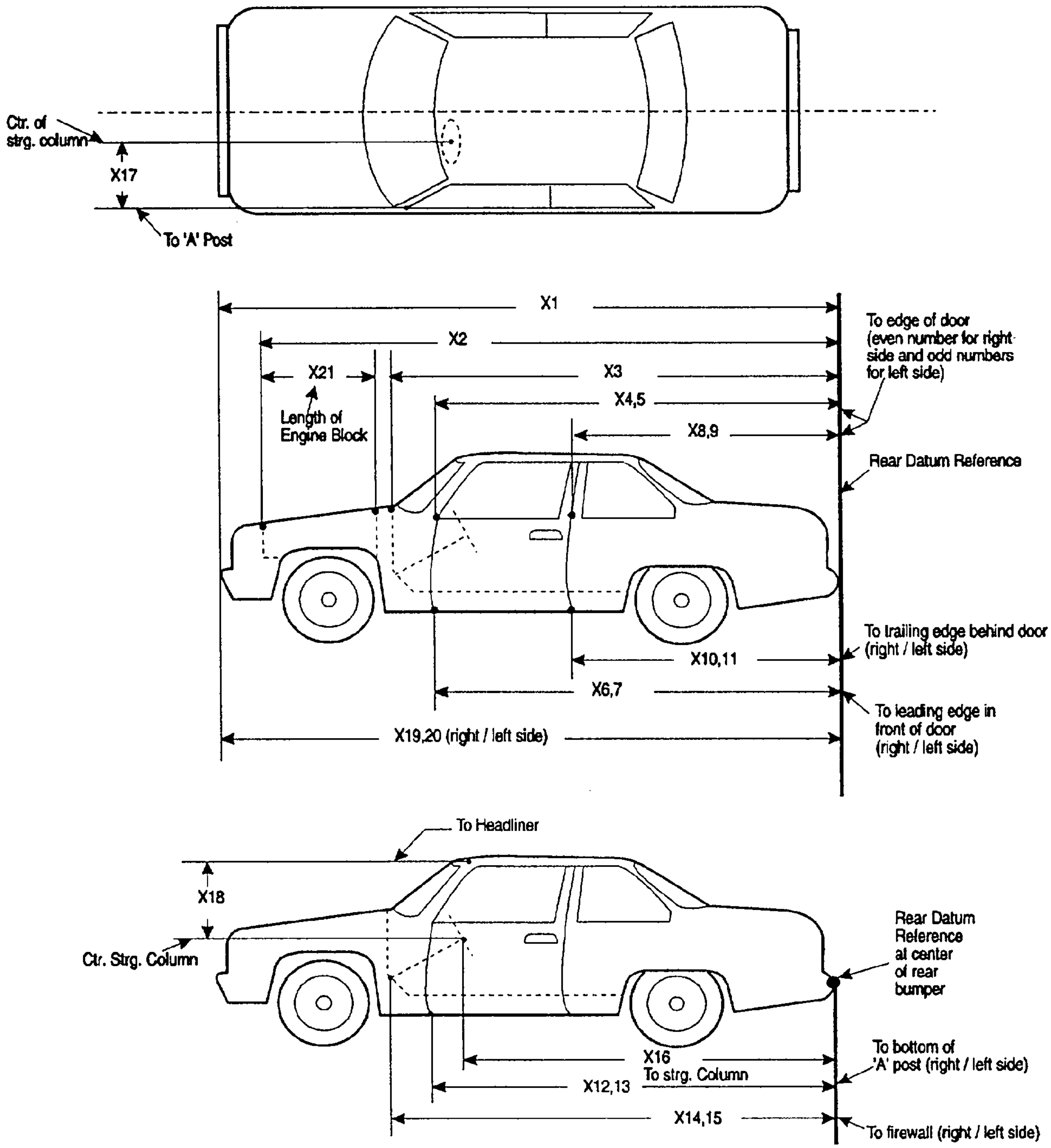
Vehicle Year/Make/Model/Body Style: 1997/Chevrolet/Blazer/mpv

Camera Number	View	Camera Positions[1] X	Y	Z	Angle[2]	Film Plane to Head Target	Lens	Film Speed
1	Real-time panning	-3607 mm	2802 mm	1549 mm	NA	NA	16 mm	24 frames/s
2	Left Barrier to seat back	-4572 mm	8229 mm	2591 mm	-27°	7925 mm	25 mm	995 frames/s
3	Left windshield intrusion	-1346 mm	7859 mm	1074 mm	0°	NA	50 mm	1005 frames/s
4	Dummy angled view	-1054 mm	3139 mm	1118 mm	-12°	3048 mm	25 mm	998 frames/s
5	Column movement - upper	-3657 mm	8230 mm	2616 mm	-14°	NA	25 mm	998 frames/s
6	Column movement - lower	-3657 mm	8230 mm	1908 mm	-9°	NA	25 mm	1002 frames/s
7	Right side overall	-2065 mm	-6767 mm	942 mm	-2°	NA	13 mm	1010 frames/s
8	Right windshield intrusion	-968 mm	-7775 mm	1118 mm	0°	NA	50 mm	1005 frames/s
9	Passenger angled view	-986 mm	-2895 mm	1151 mm	7°	2743 mm	25 mm	998 frames/s
10	Right medium tight	-4674 mm	-7162 mm	2540 mm	-26°	6096 mm	25 mm	990 frames/s
11	Windshield - barrier center	-925 mm	0 mm	2489 mm	-40°	NA	13 mm	1000 frames/s
12	Driver - barrier view	-173 mm	368 mm	2159 mm	-41°	NA	17 mm	998 frames/s
13	Passenger - barrier view	-114 mm	-351 mm	2159 mm	-40°	NA	17 mm	1000 frames/s
14	Crush & fluid spillage - front pit	-1283 mm	0 mm	-2347 mm	90°	NA	13 mm	990 frames/s
15	Fluid spillage - rear pit	-2522 mm	0 mm	-2515 mm	90°	NA	13 mm	1002 frames/s
16	Driver seat belt movement	NA	NA	NA	NA	NA	13 mm	1002 frames/s
17	Passenger seat belt movement	NA	NA	NA	NA	NA	13 mm	1000 frames/s

1 +X = Film plane forward of barrier face
+Y = Film plane to left of monorail centerline
+Z = Film plane above ground level
2 +Angle = Film plane angled upward from horizontal plane

Figure 11 Vehicle Target Locations





Ctr. of strg. column
X17
To 'A' Post
X1
X2
X21
X3
X4,5
X8,9
Length of Engine Block
To edge of door (even number for right side and odd numbers for left side)
Rear Datum Reference
To trailing edge behind door (right / left side)
X10,11
X6,7
To leading edge in front of door (right / left side)
X19,20 (right / left side)
To Headliner
X18
Ctr. Strg. Column
Rear Datum Reference at center of rear bumper
X16
To strg. Column
X12,13
To bottom of 'A' post (right / left side)
X14,15
To firewall (right / left side)

Table 14 Impacted Vehicle Measurements

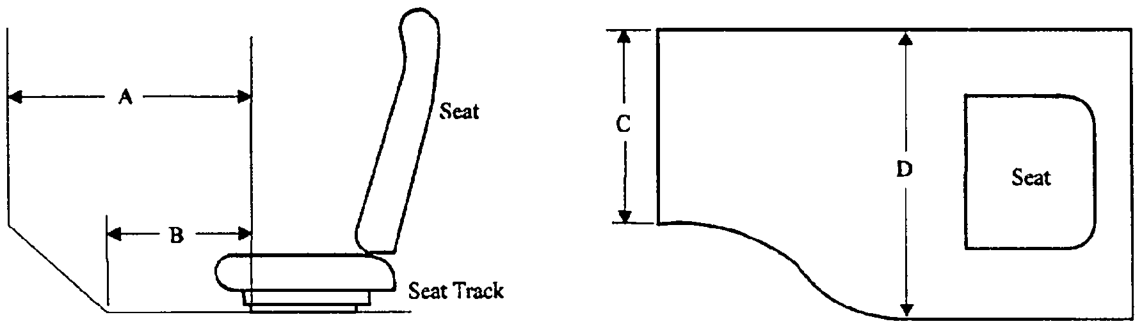
Test number: 961212

Vehicle year/make/model/body style: 1997/Chevrolet/Blazer/mpv

No.	Type of measurement	Pre-test	Post-test	Difference
X1	Total length of vehicle at centerline	4587 mm	3938 mm	649 mm
X2	Rear surface of vehicle to front of engine block	4006 mm	3858 mm	148 mm
X3	Rear surface of vehicle to firewall	3487 mm	3418 mm	69 mm
X4	Rear surface of vehicle to upper leading edge of right door	3205 mm	3193 mm	12 mm
X5	Rear surface of vehicle to upper leading edge of left door	3209 mm	3180 mm	29 mm
X6	Rear surface of vehicle to lower leading edge of right door	3176 mm	3160 mm	16 mm
X7	Rear surface of vehicle to lower leading edge of left door	3183 mm	3148 mm	35 mm
X8	Rear surface of vehicle to upper trailing edge of right door	2111 mm	2099 mm	12 mm
X9	Rear surface of vehicle to upper trailing edge of left door	2117 mm	2094 mm	23 mm
X10	Rear surface of vehicle to lower trailing edge of right door	2104 mm	2084 mm	20 mm
X11	Rear surface of vehicle to lower trailing edge of left door	2108 mm	2075 mm	33 mm
X12	Rear surface of vehicle to bottom of "A" post on right side	3155 mm	3141 mm	14 mm
X13	Rear surface of vehicle to bottom of "A" post on left side	3159 mm	3125 mm	34 mm
X14	Rear surface of vehicle to firewall - right side	3459 mm	3402 mm	57 mm
X15	Rear surface of vehicle to firewall - left side	3420 mm	3400 mm	20 mm
X16	Rear surface of vehicle to steering wheel center	2607 mm	2799 mm	-192 mm
X17	Center of steering column to "A" post	277 mm	255 mm	22 mm
X18	Center of steering column to headliner	462 mm	362 mm	100 mm
X19	Rear surface of vehicle to right side of front bumper	4450 mm	3962 mm	488 mm
X20	Rear surface of vehicle to left side of front bumper	4435 mm	3950 mm	485 mm
X21	Length of engine block	530 mm	530 mm	0 mm
RD	Rear surface of vehicle to right side of dash panel	2944 mm	2934 mm	10 mm
CD	Rear surface of vehicle to center of dash panel	2940 mm	2900 mm	40 mm
LD	Rear surface of vehicle to left side of dash panel	2938 mm	2900 mm	38 mm

Figure 13 Vehicle Intrusion Measurements

Static Footwell Deformation



Driver's Side

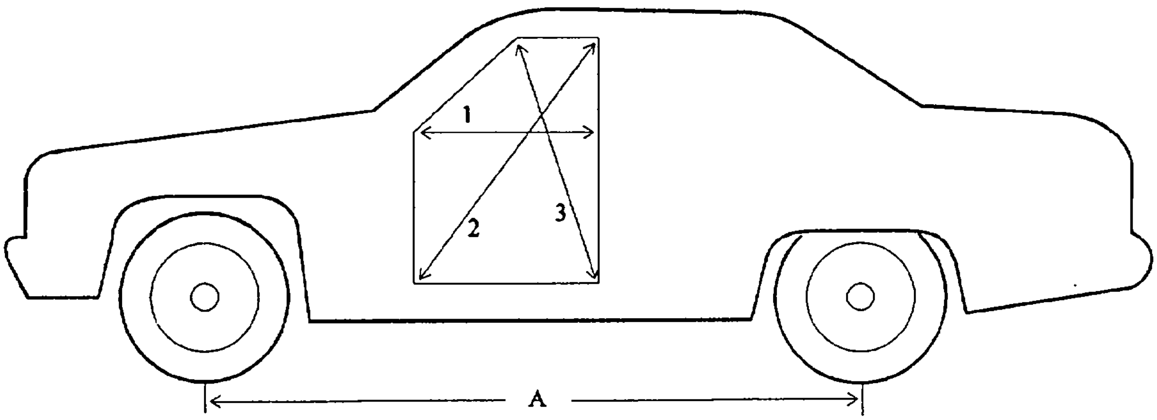
Measurement	Pre-Test	Post-Test	Difference
A	788 mm	778 mm	10 mm
B	667 mm	641 mm	26 mm
C	347 mm	327 mm	20 mm
D	401 mm	414 mm	-13 mm

Passenger's Side

Measurement	Pre-Test	Post-Test	Difference
A	782 mm	755 mm	27 mm
B	643 mm	640 mm	3 mm
C	317 mm	313 mm	4 mm
D	400 mm	395 mm	5 mm

Figure 14 Vehicle Intrusion Measurements

Door Opening Width

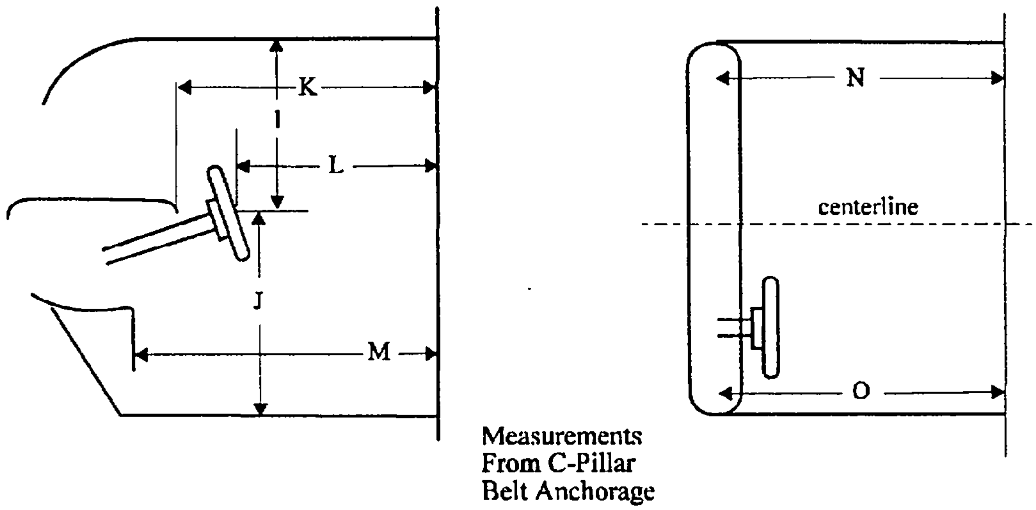


Units (mm)	Left			Right		
Measurement	1	2	3	1	2	3
Pre-Test	1058 mm	1461 mm	1188 mm	1058 mm	1462 mm	1185 mm
Post-Test	1000 mm	1367 mm	1308 mm	1015 mm	1381 mm	1296 mm
Difference	58 mm	94 mm	-120 mm	43 mm	81 mm	-111 mm

Units (mm)	A = Wheelbase Left	A = Wheelbase Right
Pre-Test	2735 mm	2735 mm
Post-Test	2580 mm	2595 mm
Difference	155 mm	140 mm

Figure 15 Vehicle Intrusion Measurements

Static Passenger Compartment Intrusion



Measurement	Pre-Test	Post-Test	Difference
I	500 mm	430 mm	70 mm
J	596 mm	775 mm	-179 mm
K (driver's side)	2729 mm	2643 mm	86 mm
L	2521 mm	2517 mm	4 mm
M (driver's side)	2784 mm	2657 mm	127 mm
N	2720 mm	2658 mm	62 mm
O	2714 mm	2625 mm	89 mm
Passenger's side	2794 mm	2715 mm	79 mm
Passenger's side	2771 mm	2674 mm	97 mm

Appendix A

Photographs

Figure A-1 Pre-Test Front View

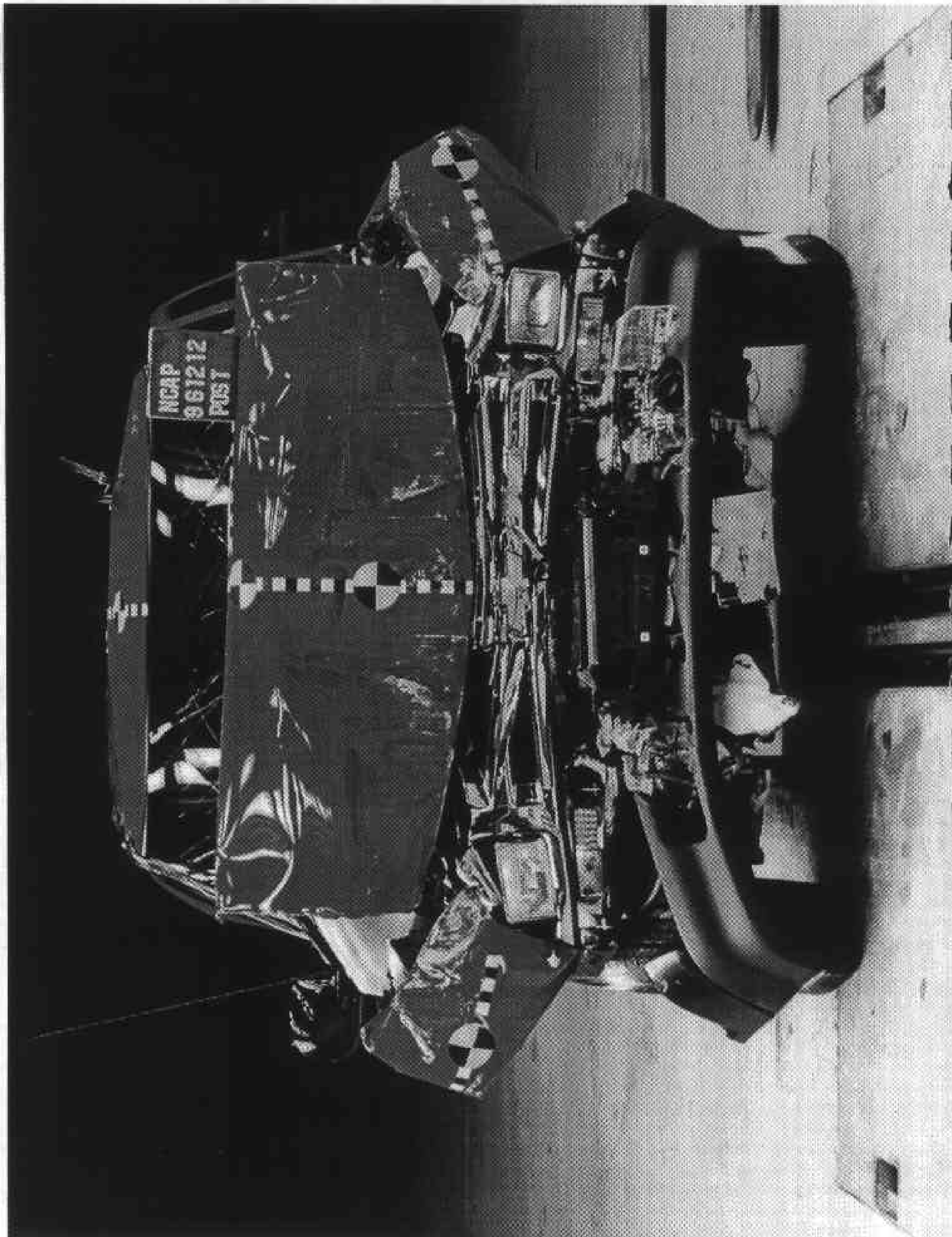


Figure A-2 Post-Test Front View

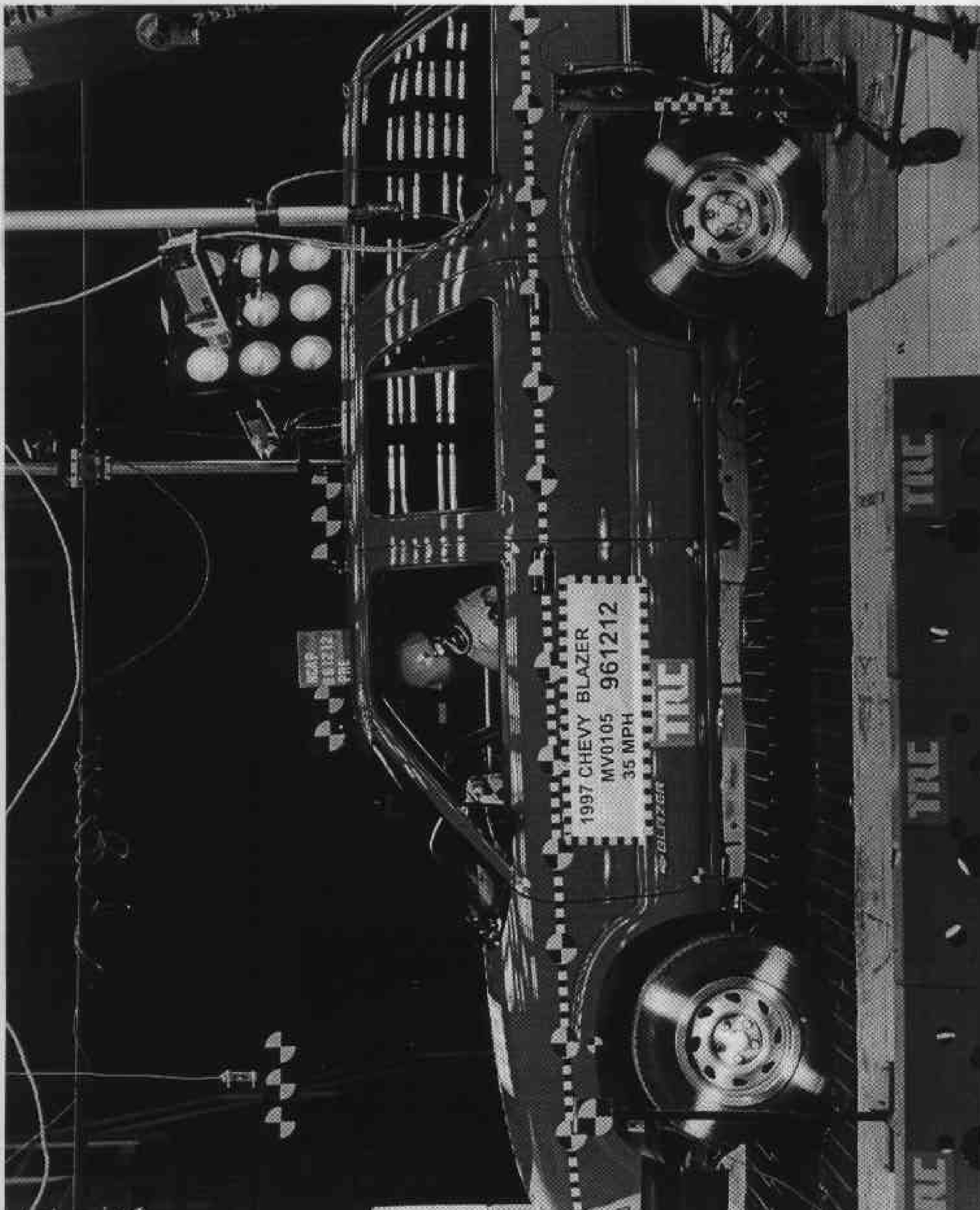


Figure A-3 Pre-Test Left Side View

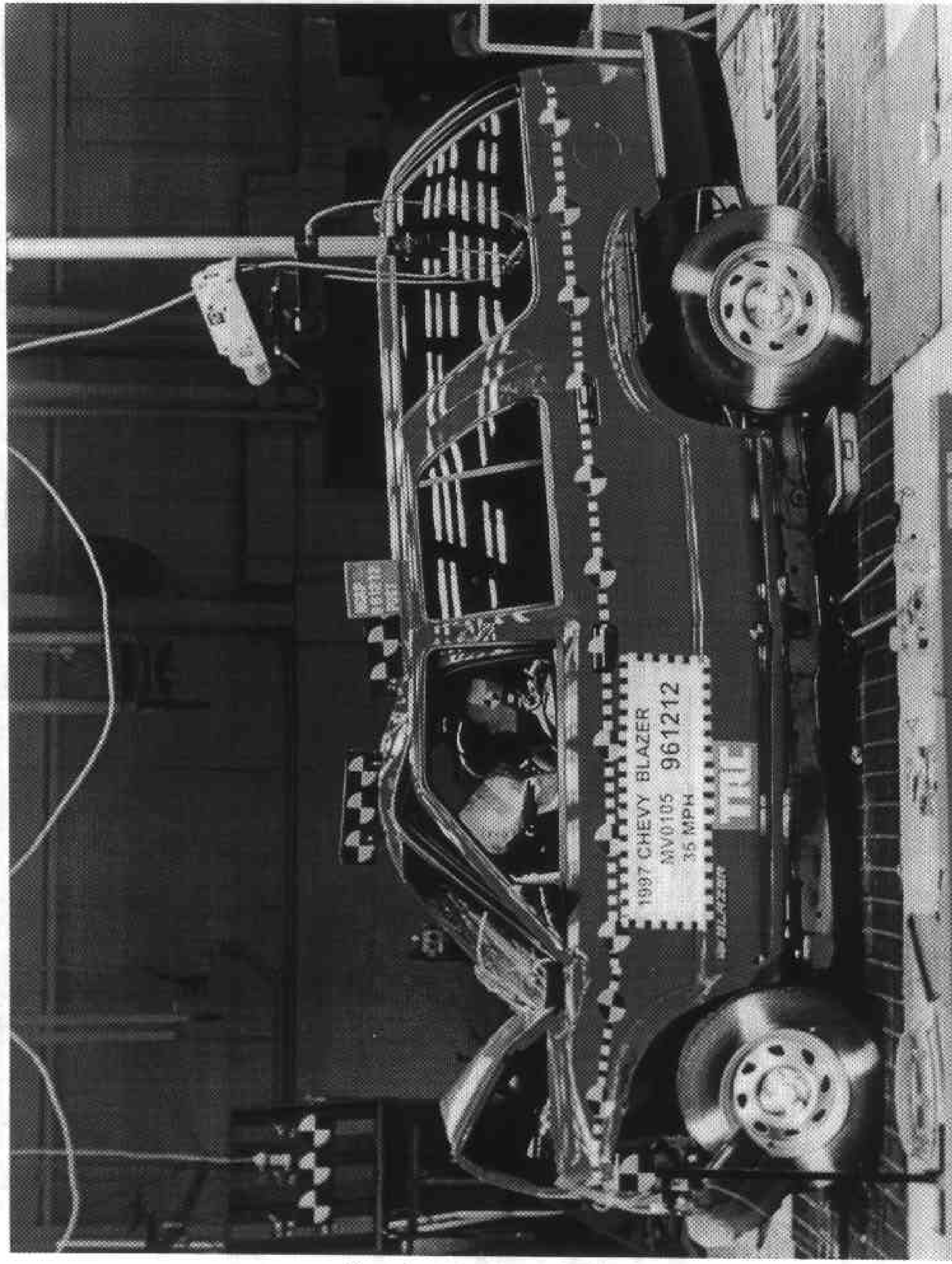


Figure A-4 Post-Test Left Side View

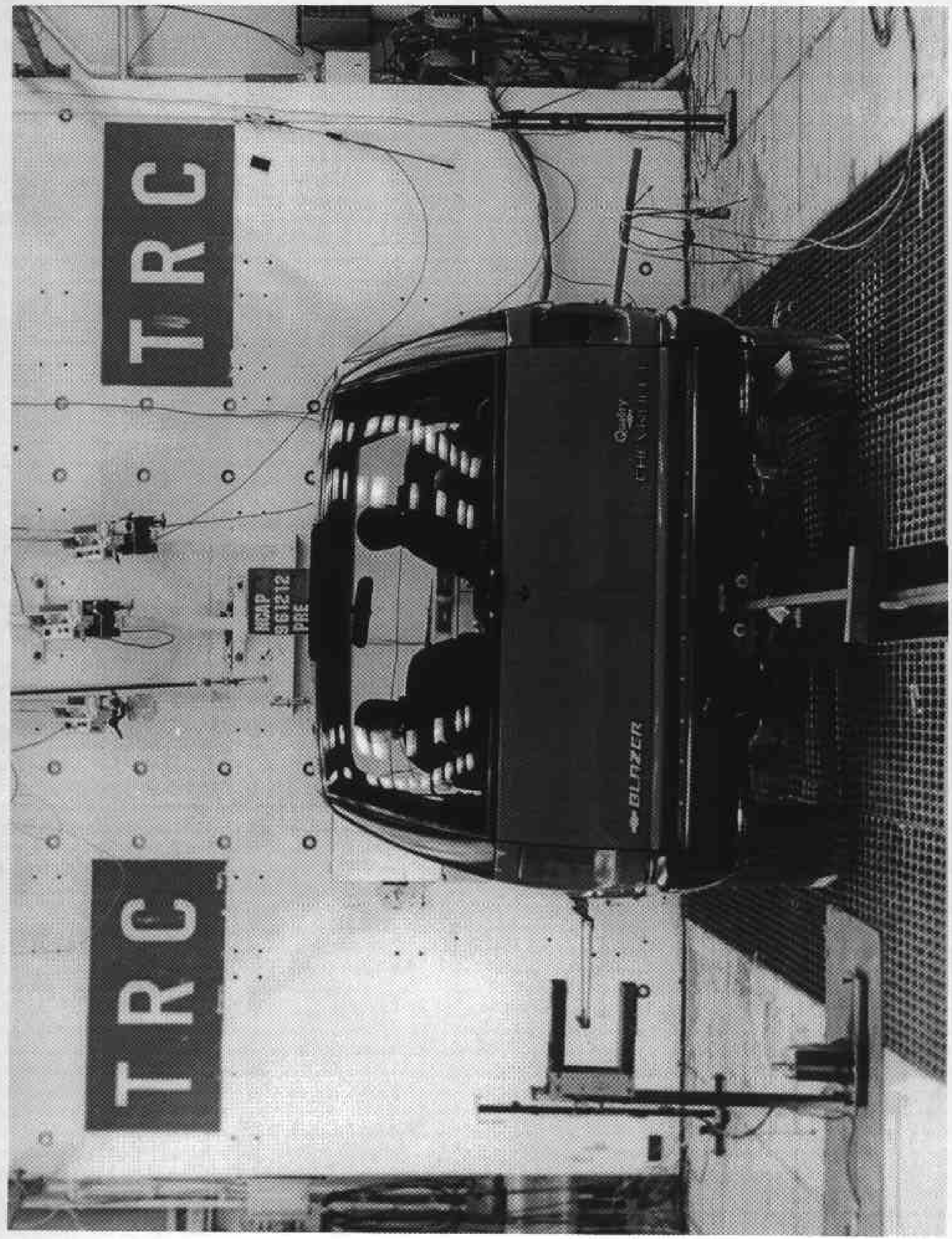


Figure A-5 Pre-Test Rear View

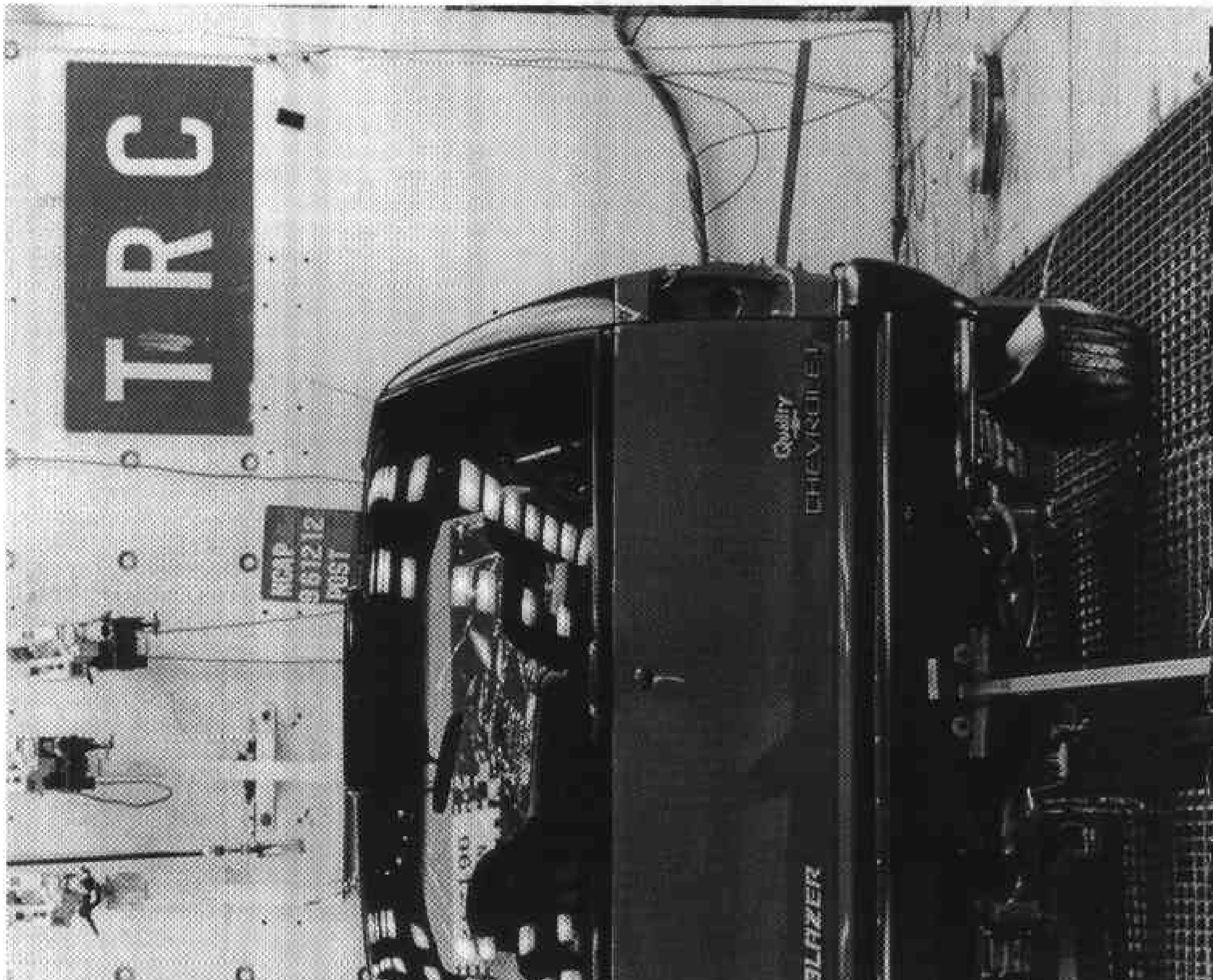


Figure A-6 Post-Test Rear View

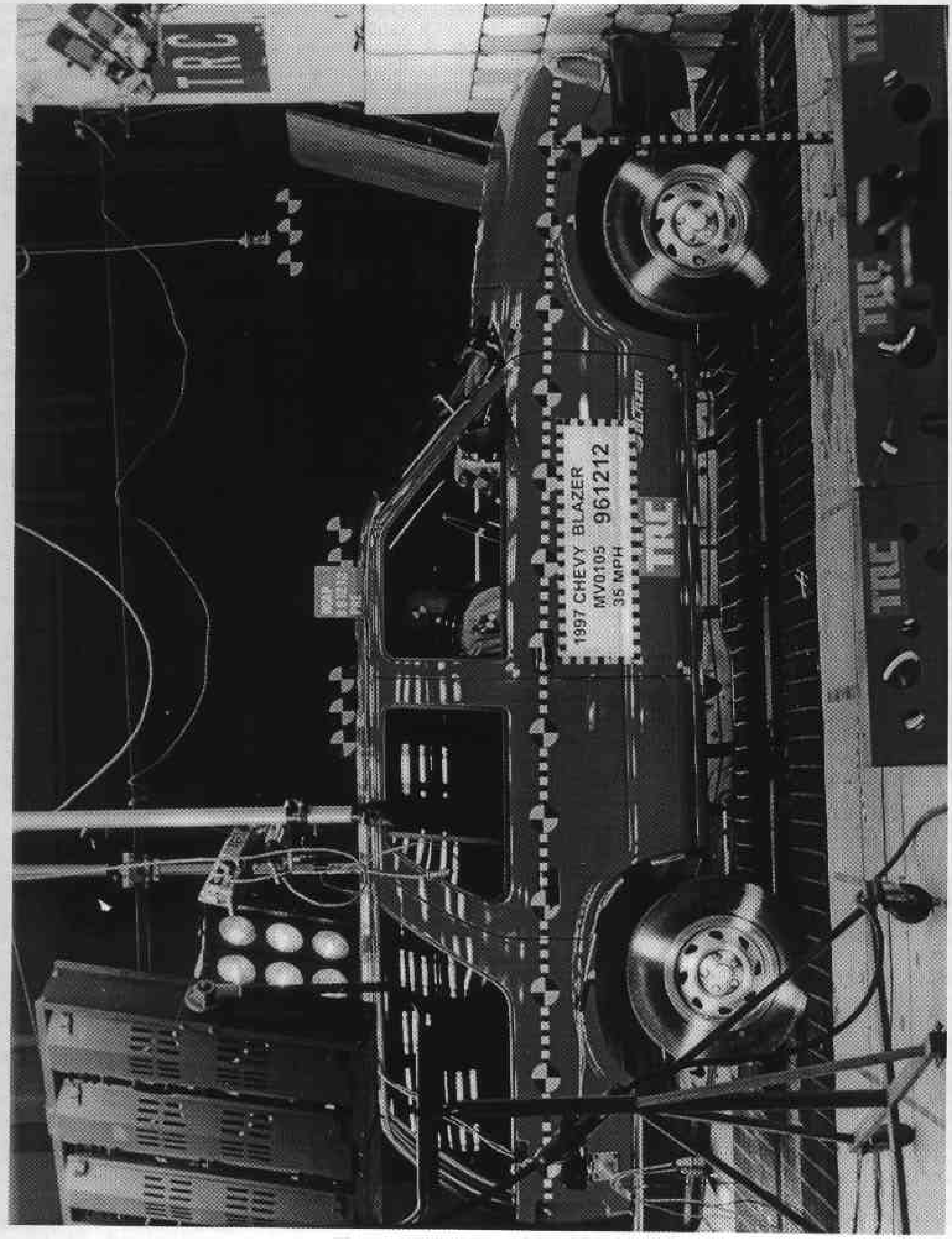


Figure A-7 Pre-Test Right Side View

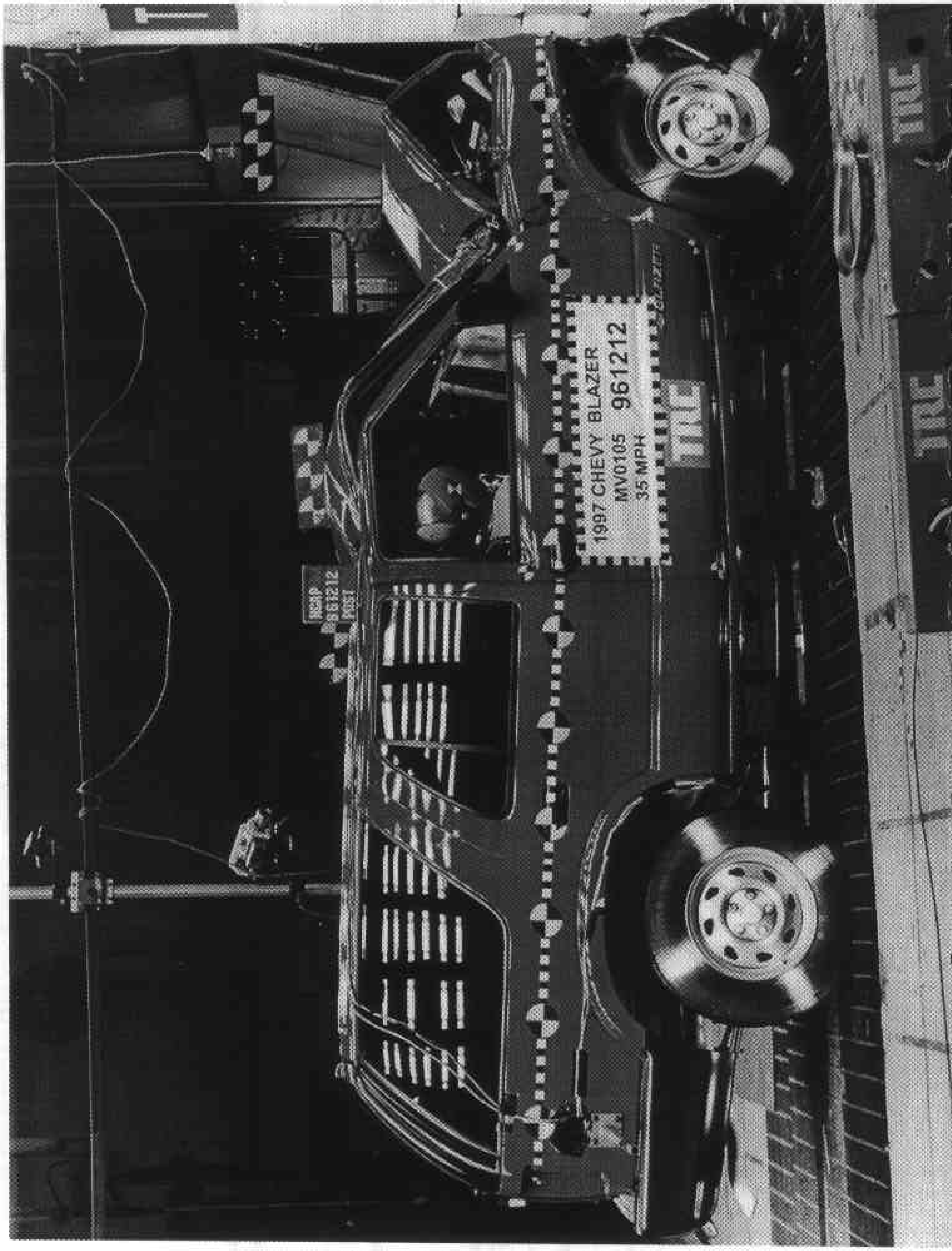


Figure A-8 Post-Test Right Side View

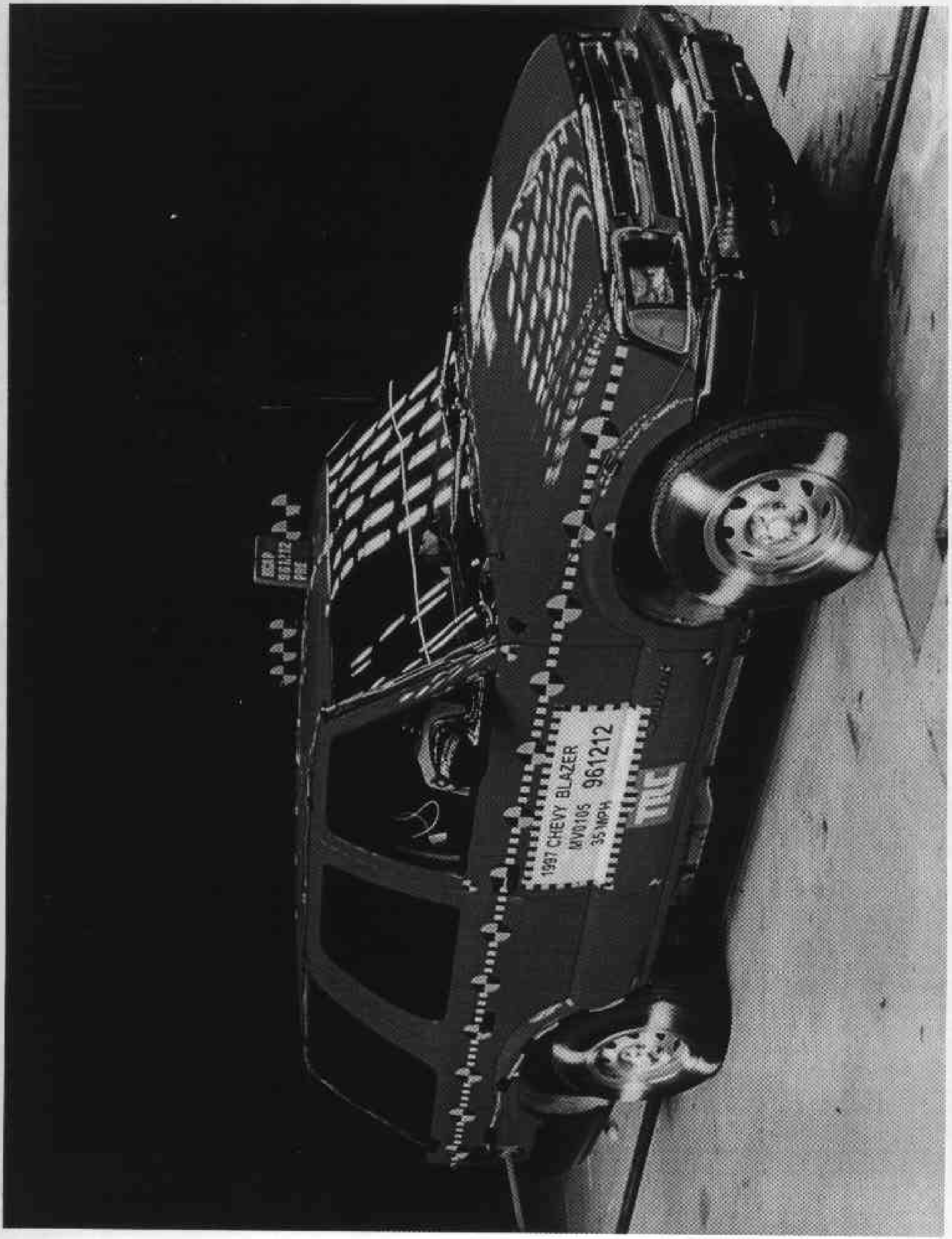


Figure A-9 Pre-Test Right Front Three-Quarter View

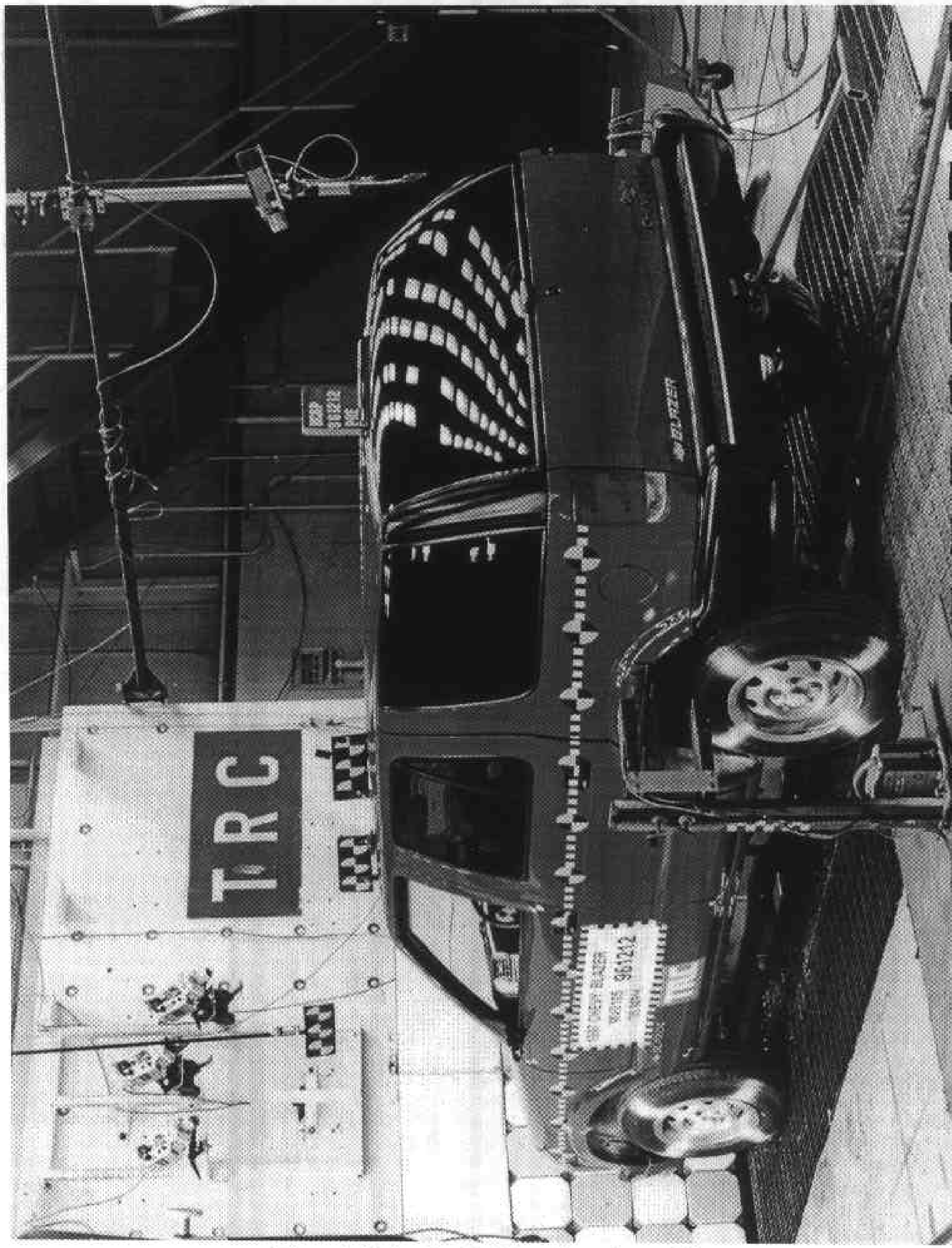


Figure A-10 Pre-Test Left Rear Three-Quarter View

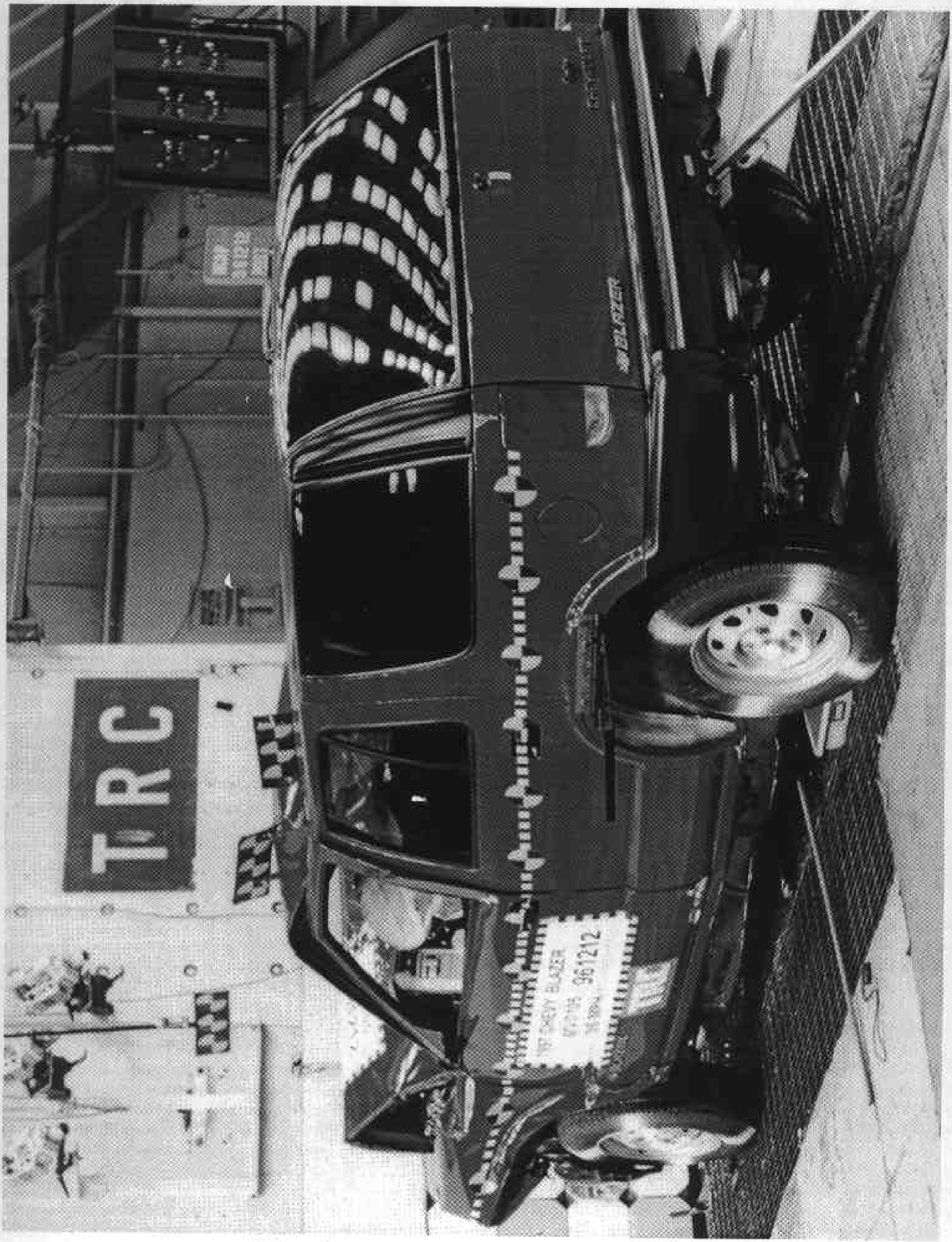


Figure A-11 Post-Test Left Rear Three-Quarter View

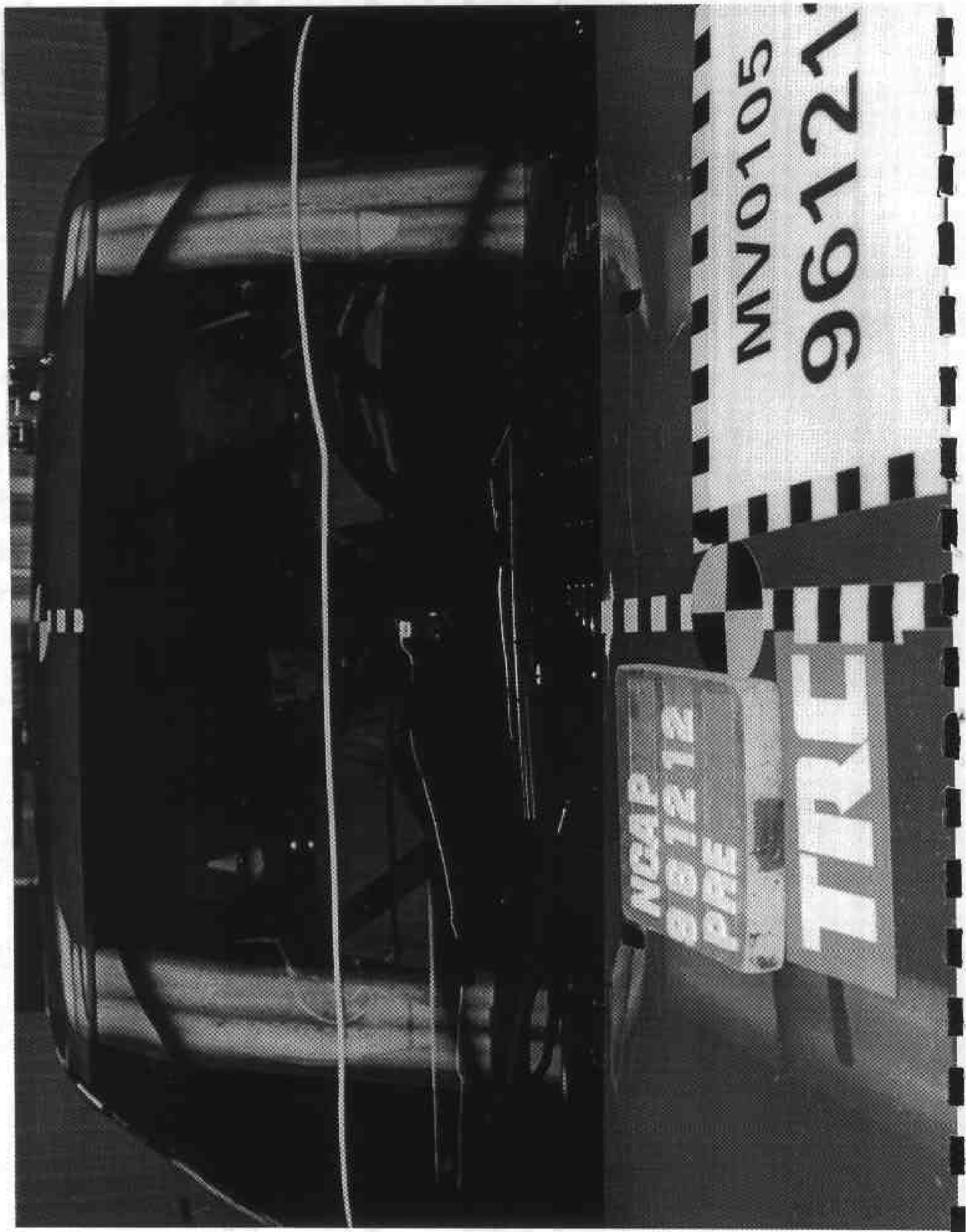


Figure A-12 Pre-Test Windshield View

Figure A-13 Post-Test Windshield View

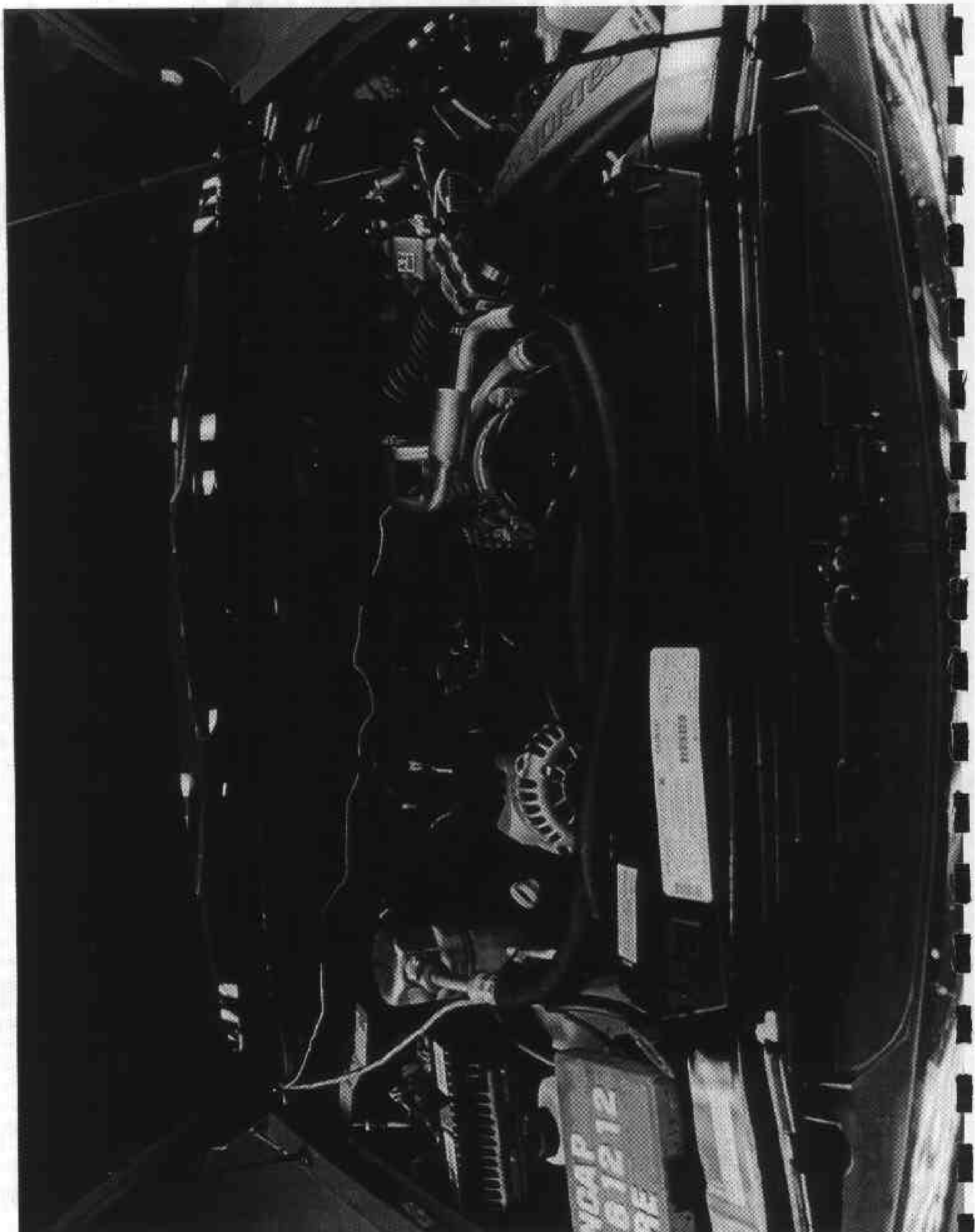


Figure A-14 Pre-Test Engine Compartment View

Figure A-15 Post-Test Engine Compartment View

Figure A-16 Pre-Test Steering Column View

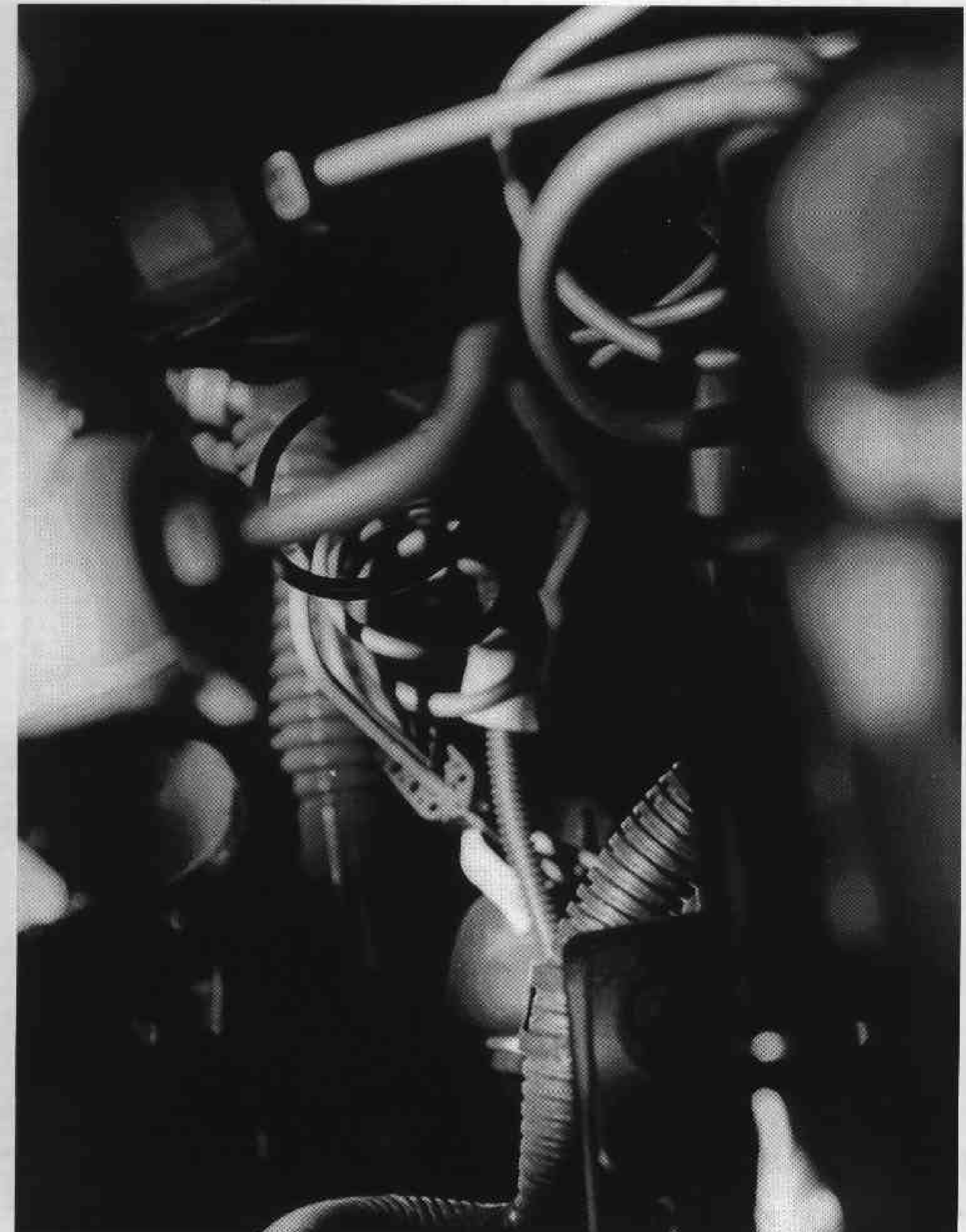


Figure A-17 Post-Test Steering Column View

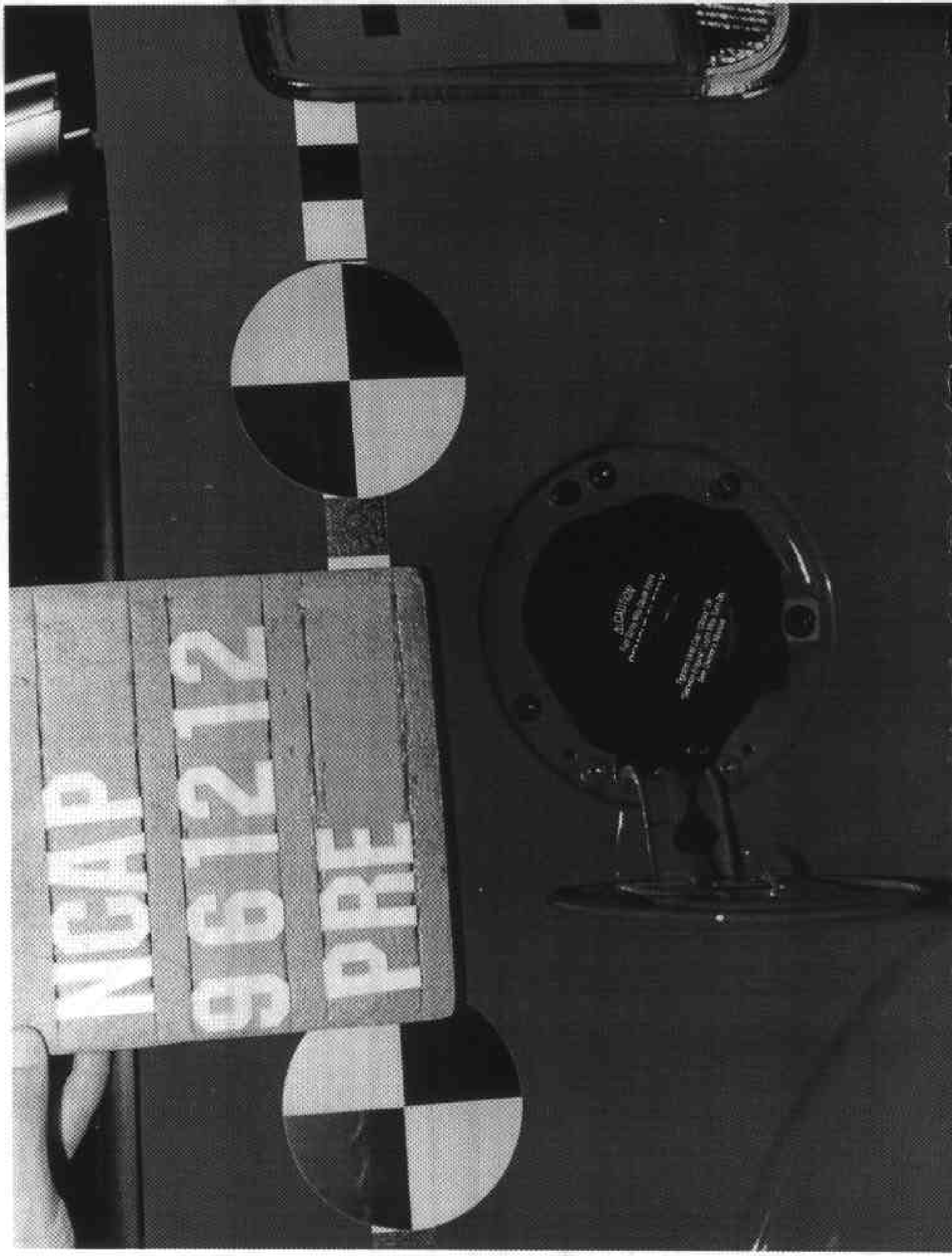


Figure A-18 Pre-Test Fuel Filler Cap View

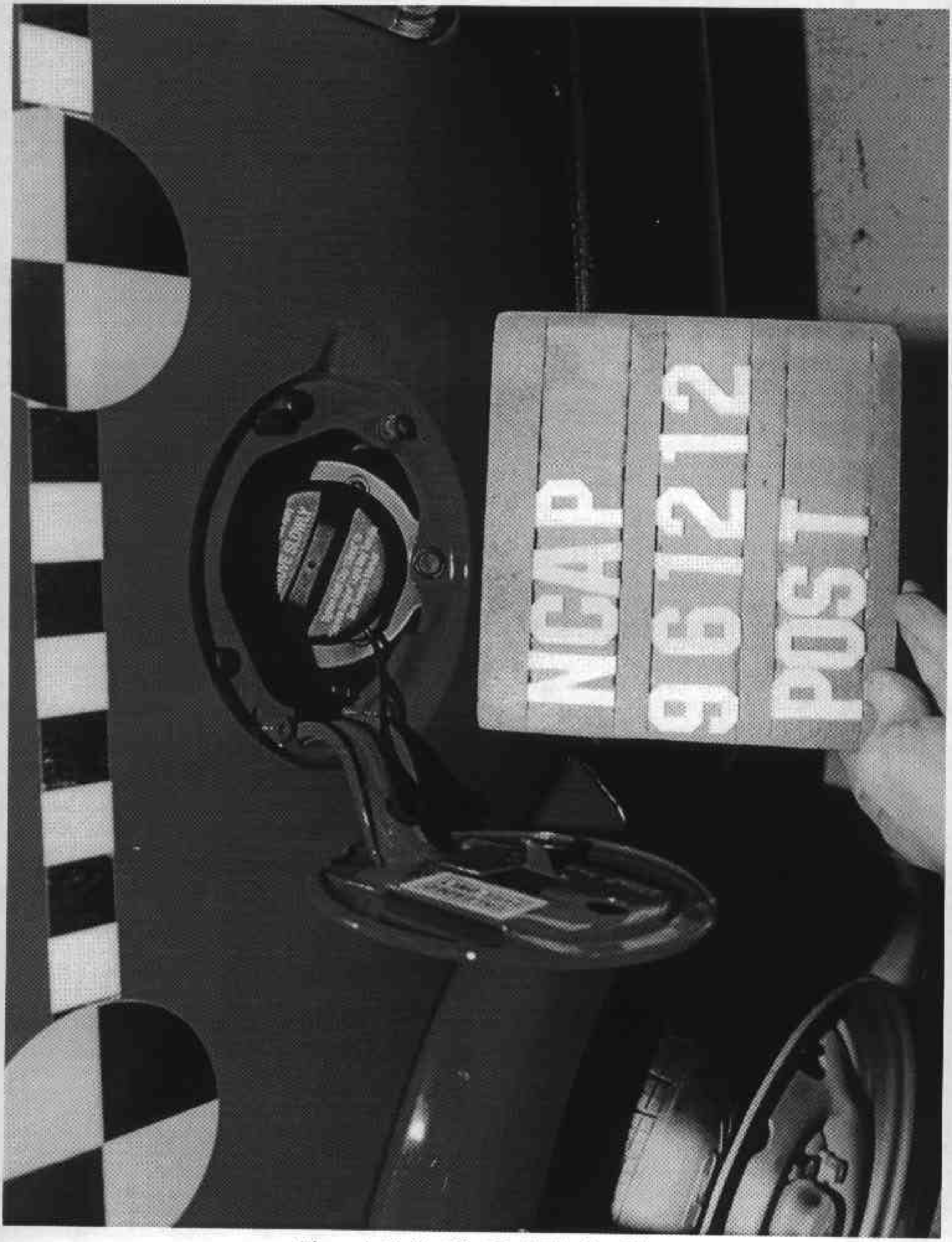


Figure A-19 Post-Test Fuel Filler Cap View

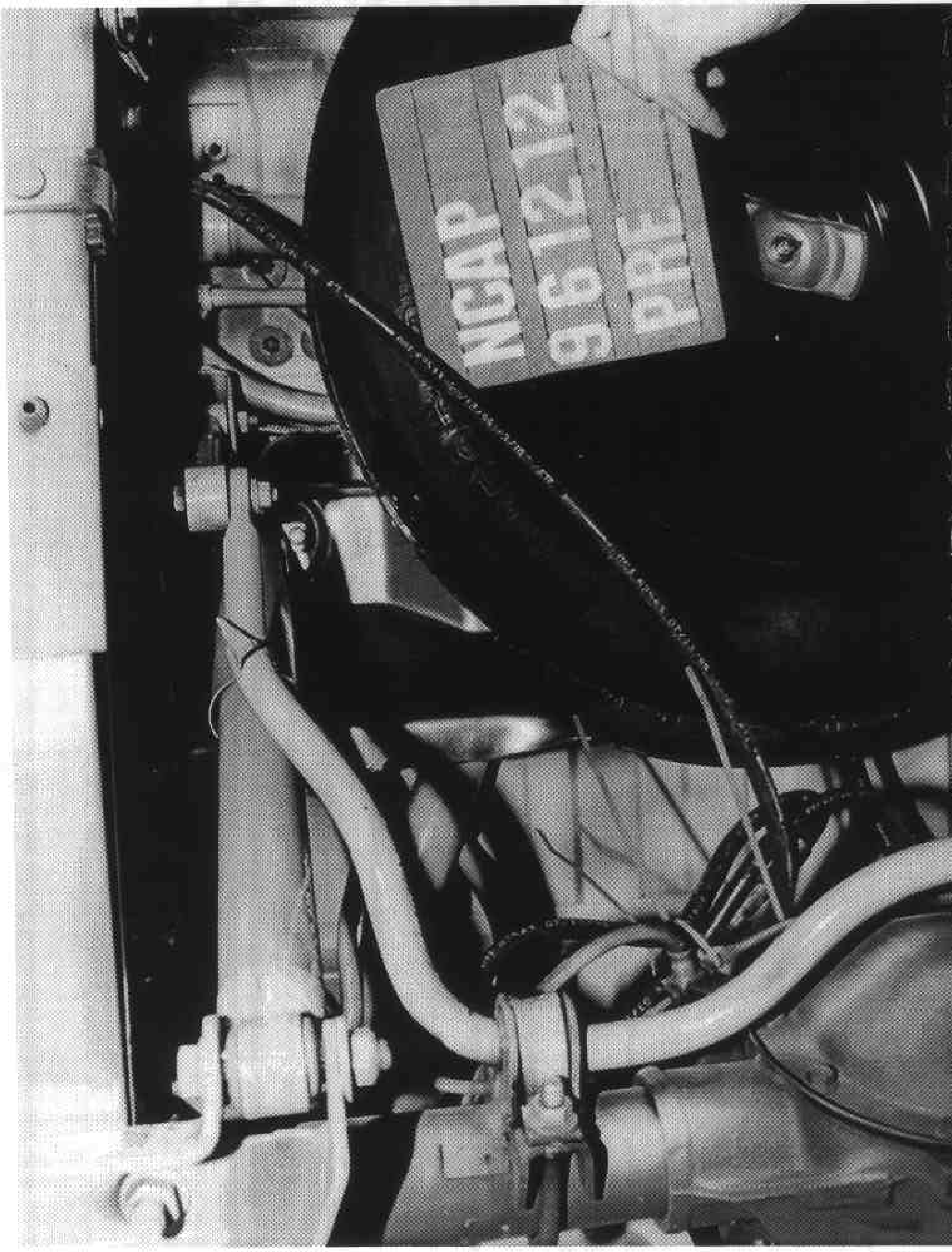


Figure A-20 Pre-Test Fuel Filler Neck View

Figure A-21 Post-Test Fuel Filler Neck View

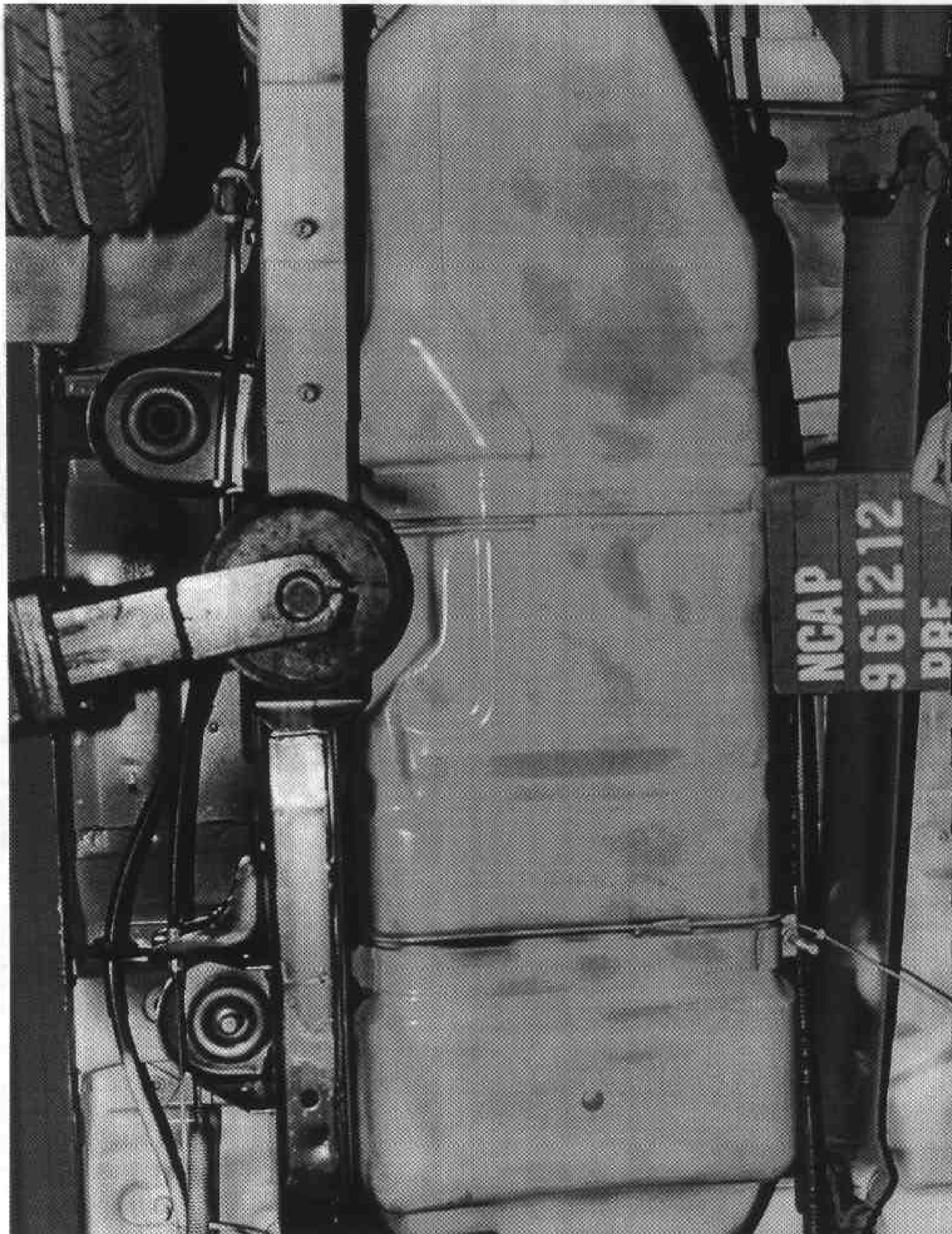


Figure A-22 Pre-Test Fuel Tank View

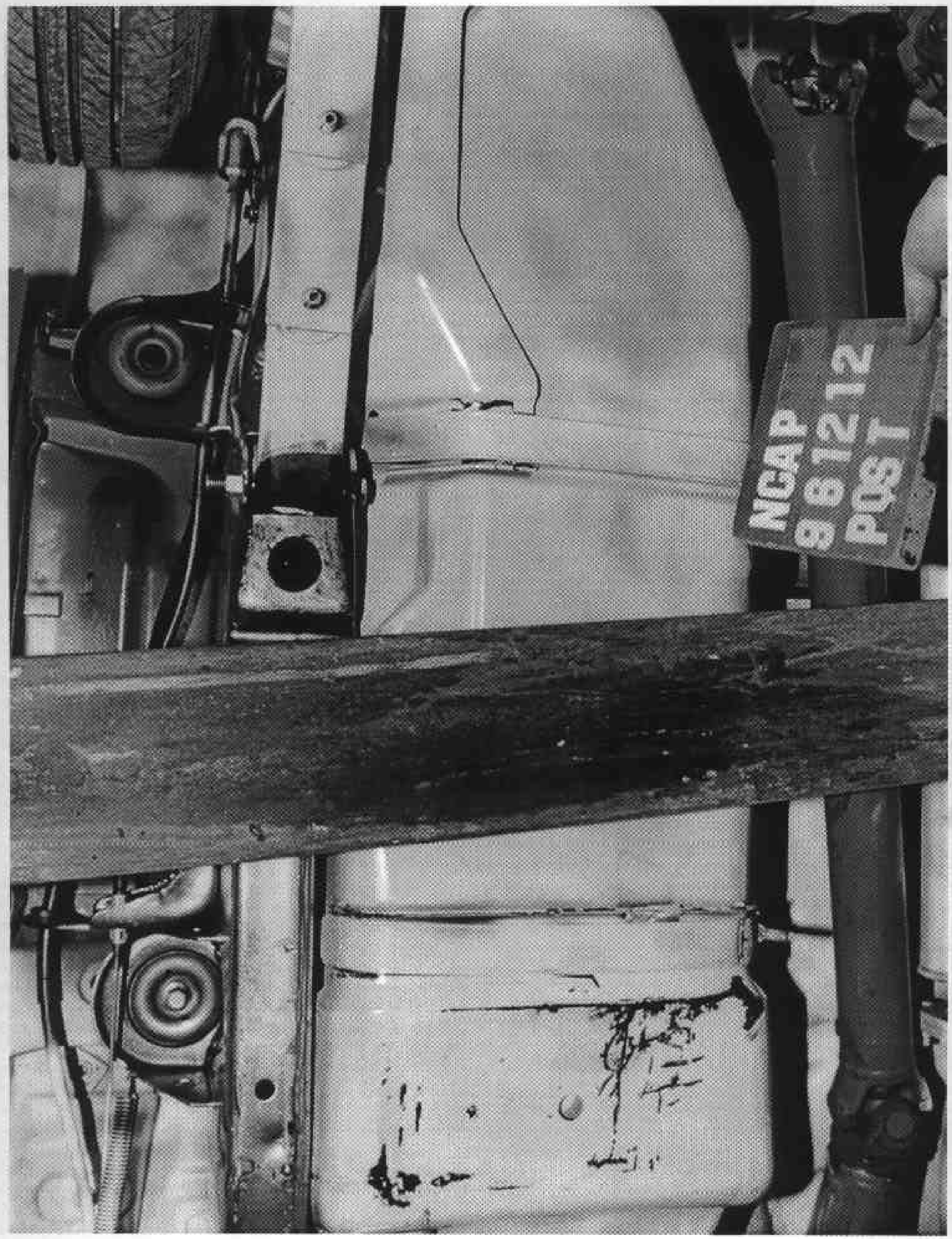


Figure A-23 Post-Test Fuel Tank - View 1

Figure A-24 Post-Test Fuel Tank - View 2

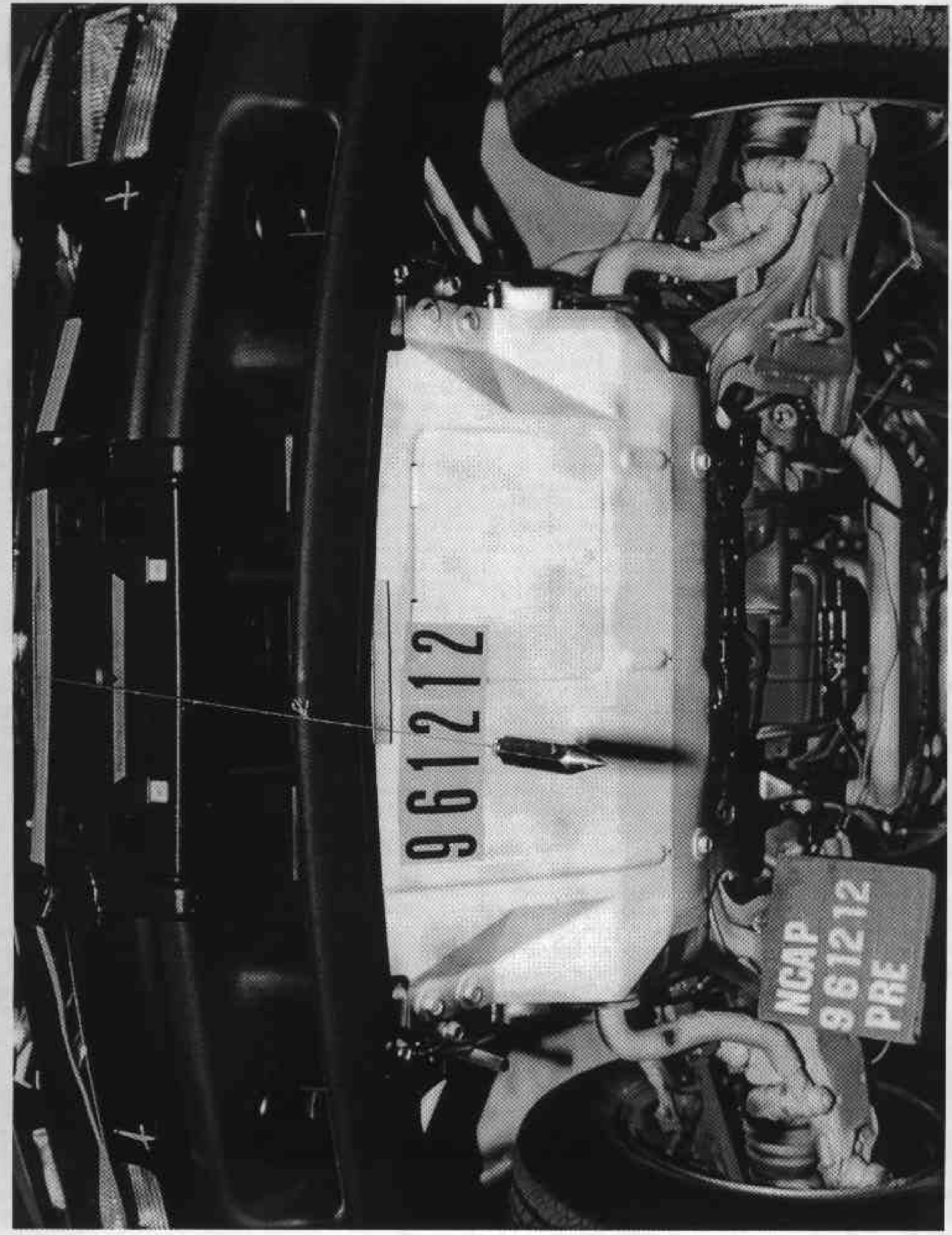


Figure A-25 Pre-Test Front Underbody View

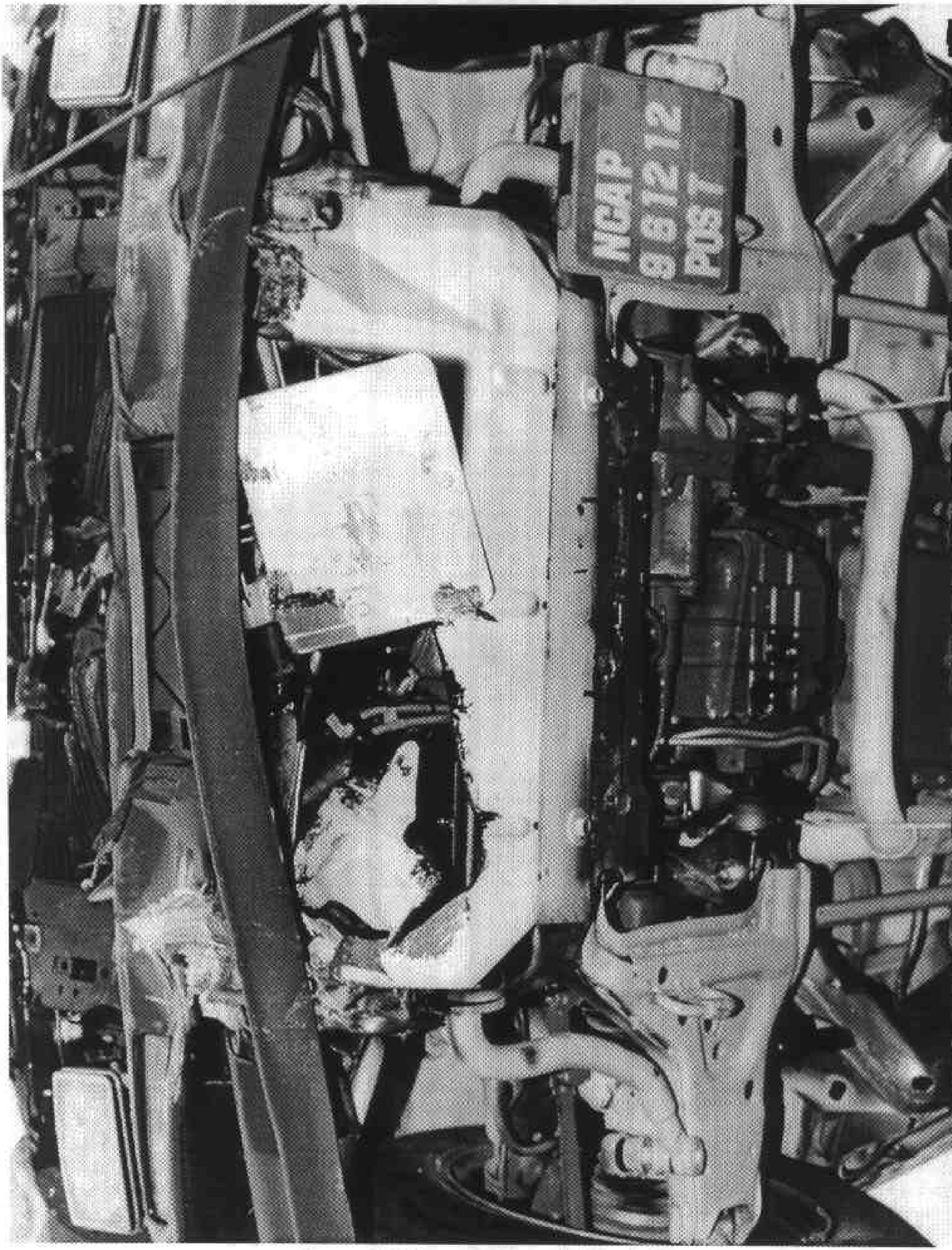


Figure A-26 Post-Test Front Underbody View

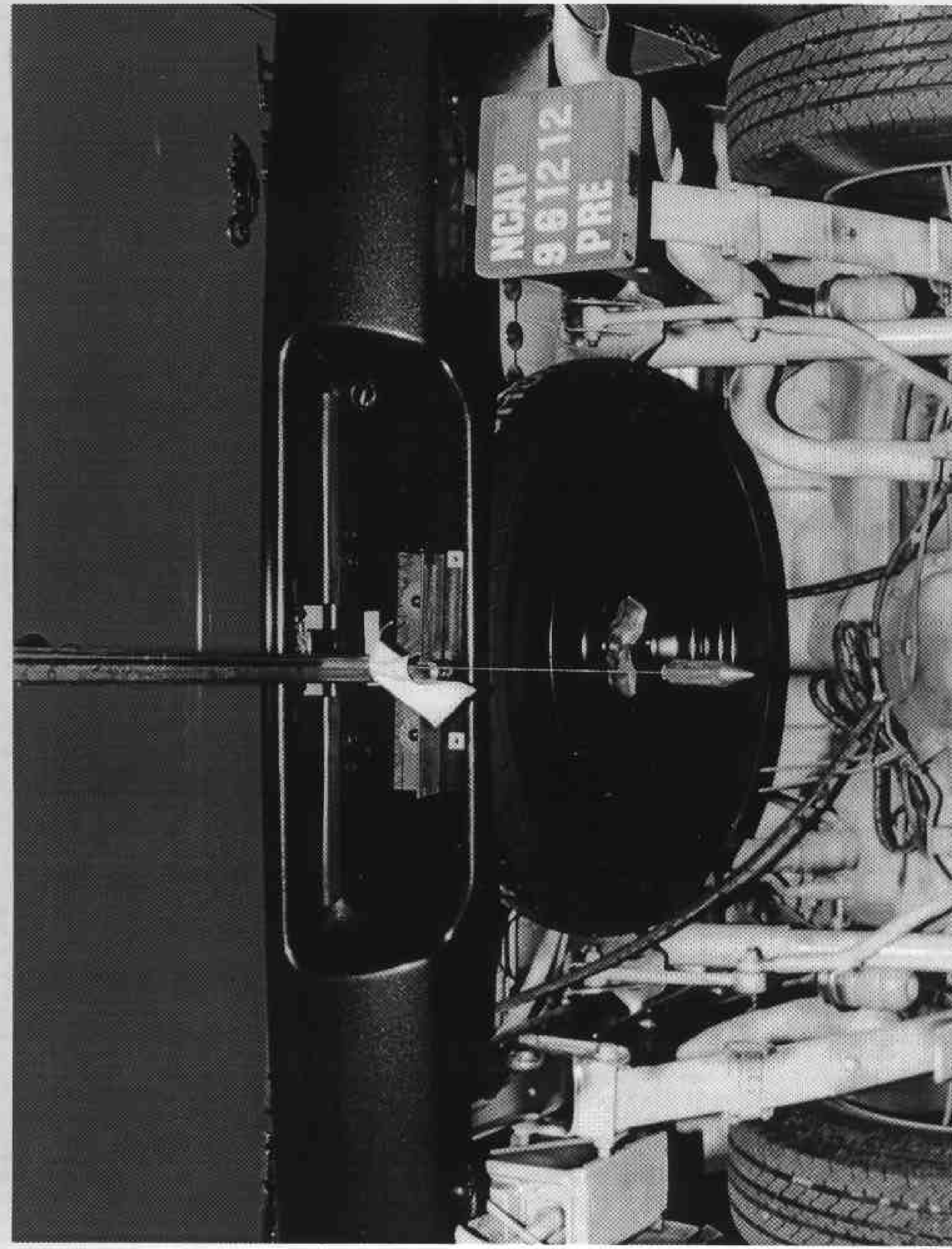


Figure A-27 Pre-Test Rear Underbody View

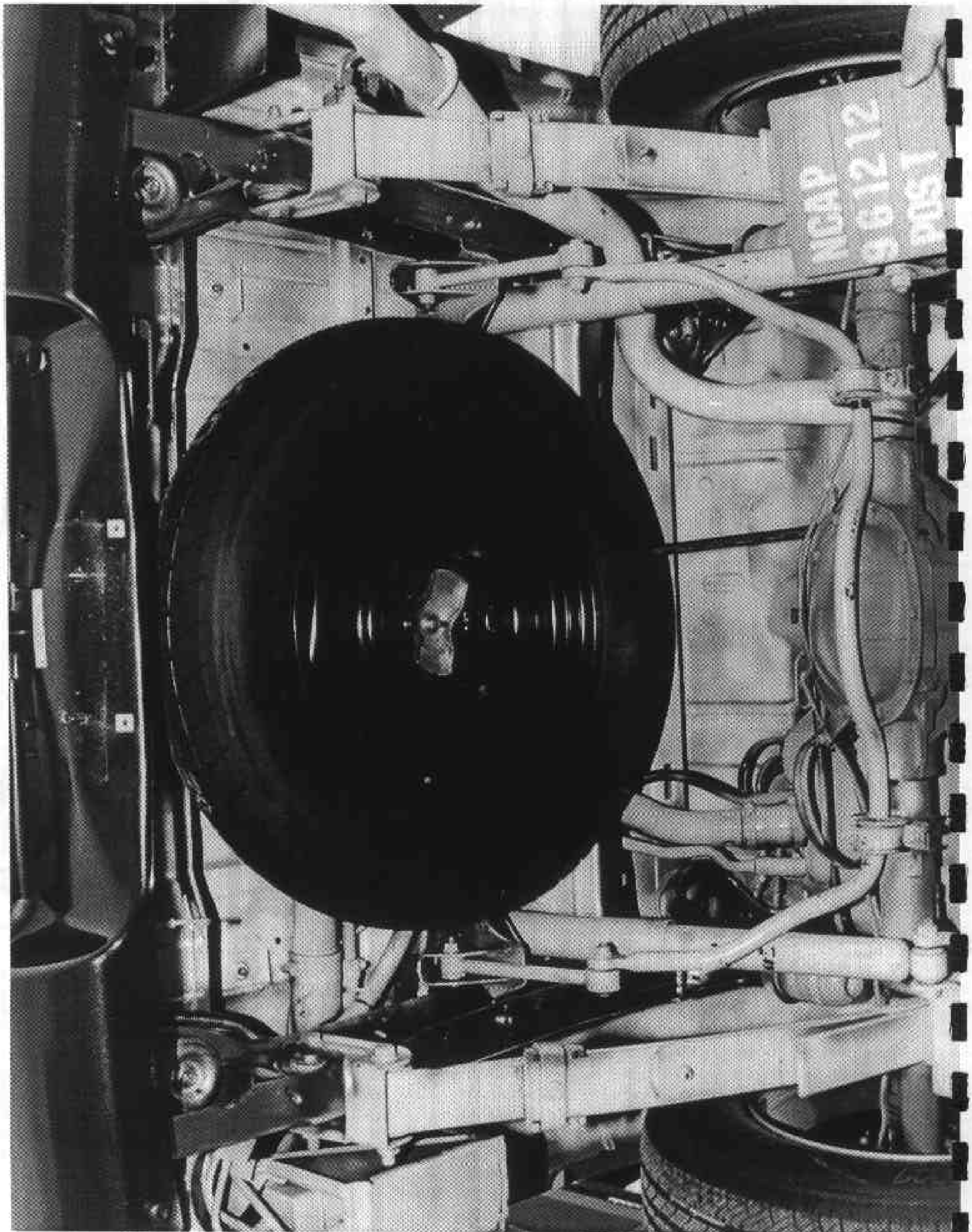


Figure A-28 Post-Test Rear Underbody View

Figure A-29 Pre-Test Driver Dummy Knee Bolster View

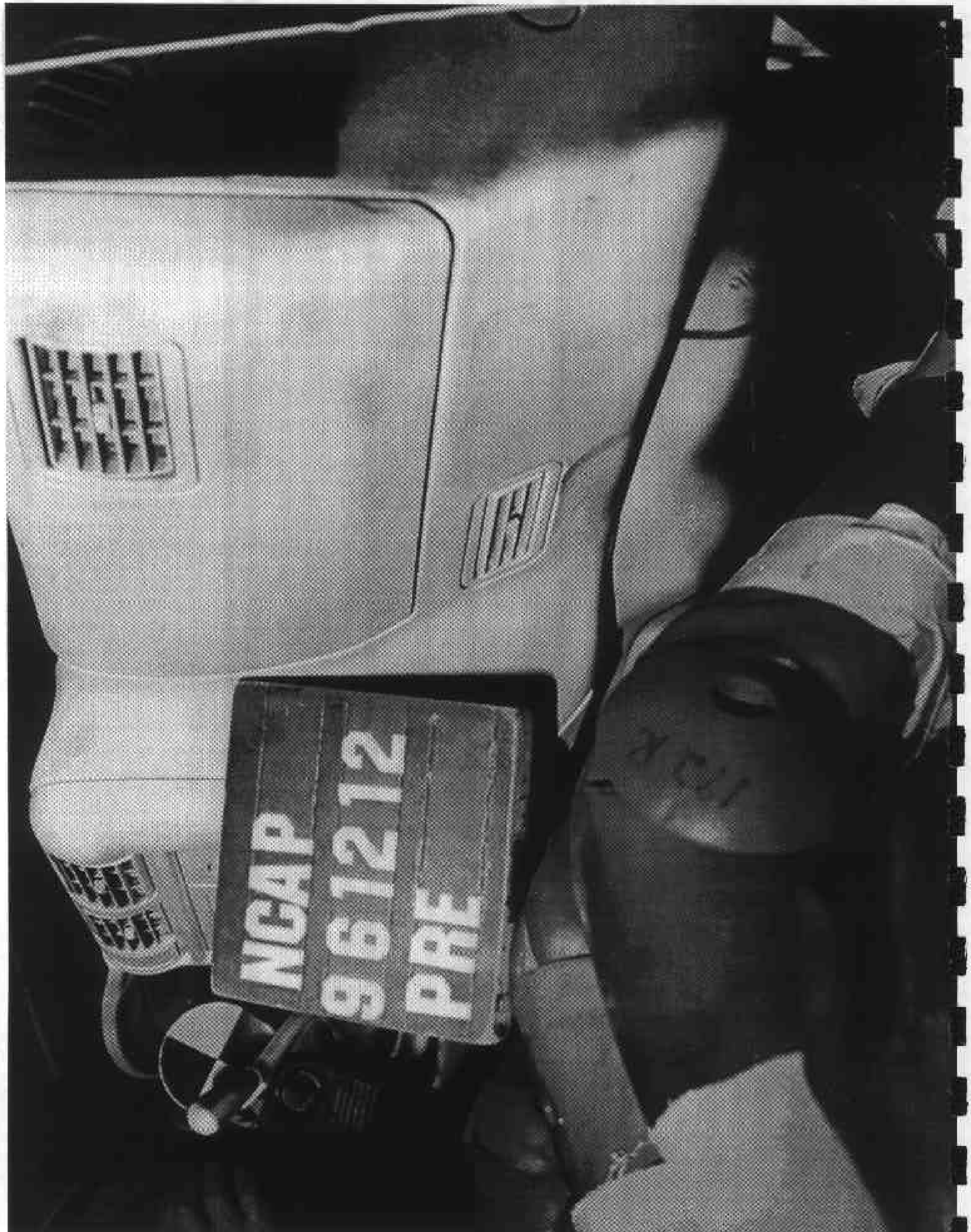


Figure A-30 Pre-Test Passenger Dummy Knee Bolster View

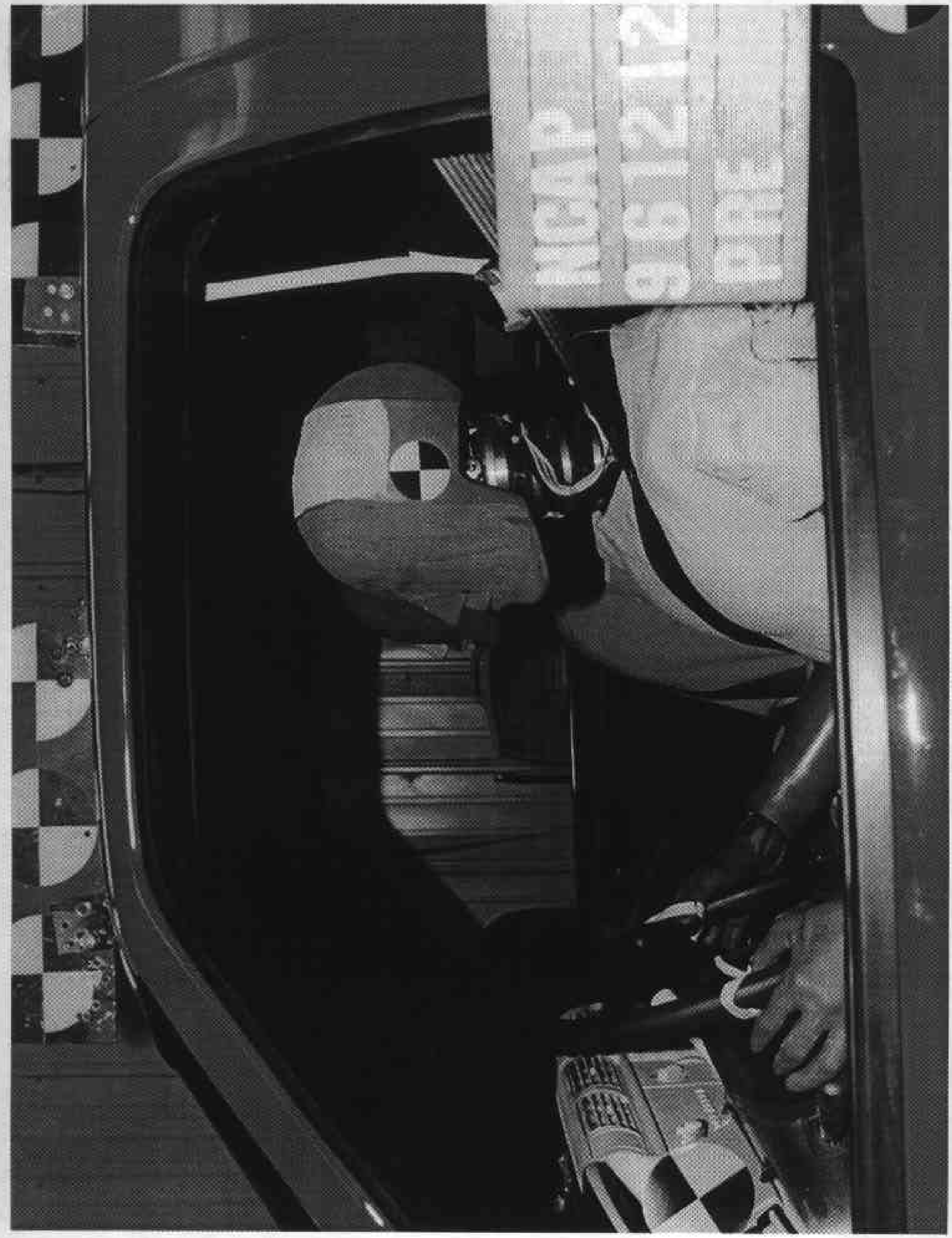


Figure A-31 Pre-Test Driver Dummy Position View

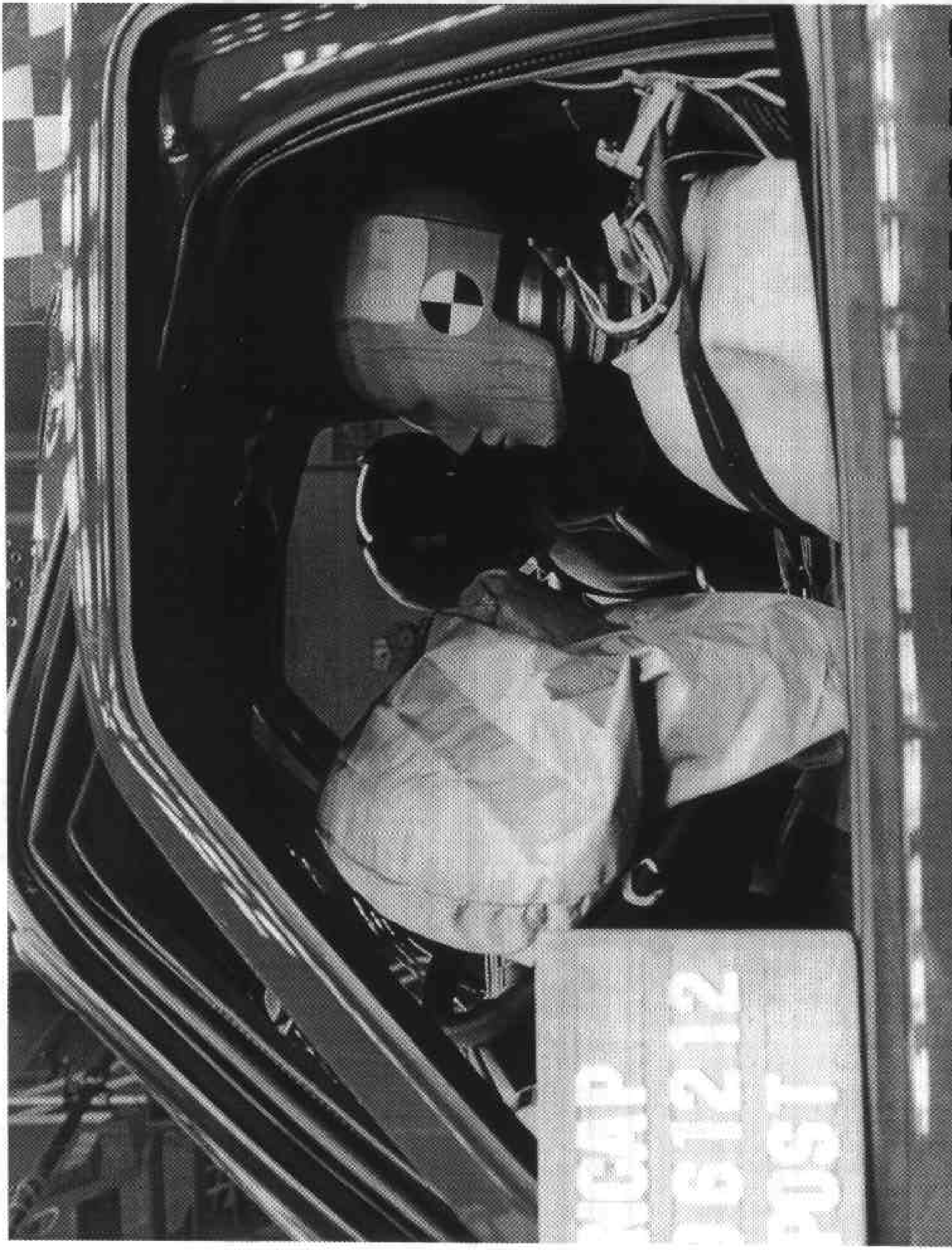


Figure A-32 Post-Test Driver Dummy Position View

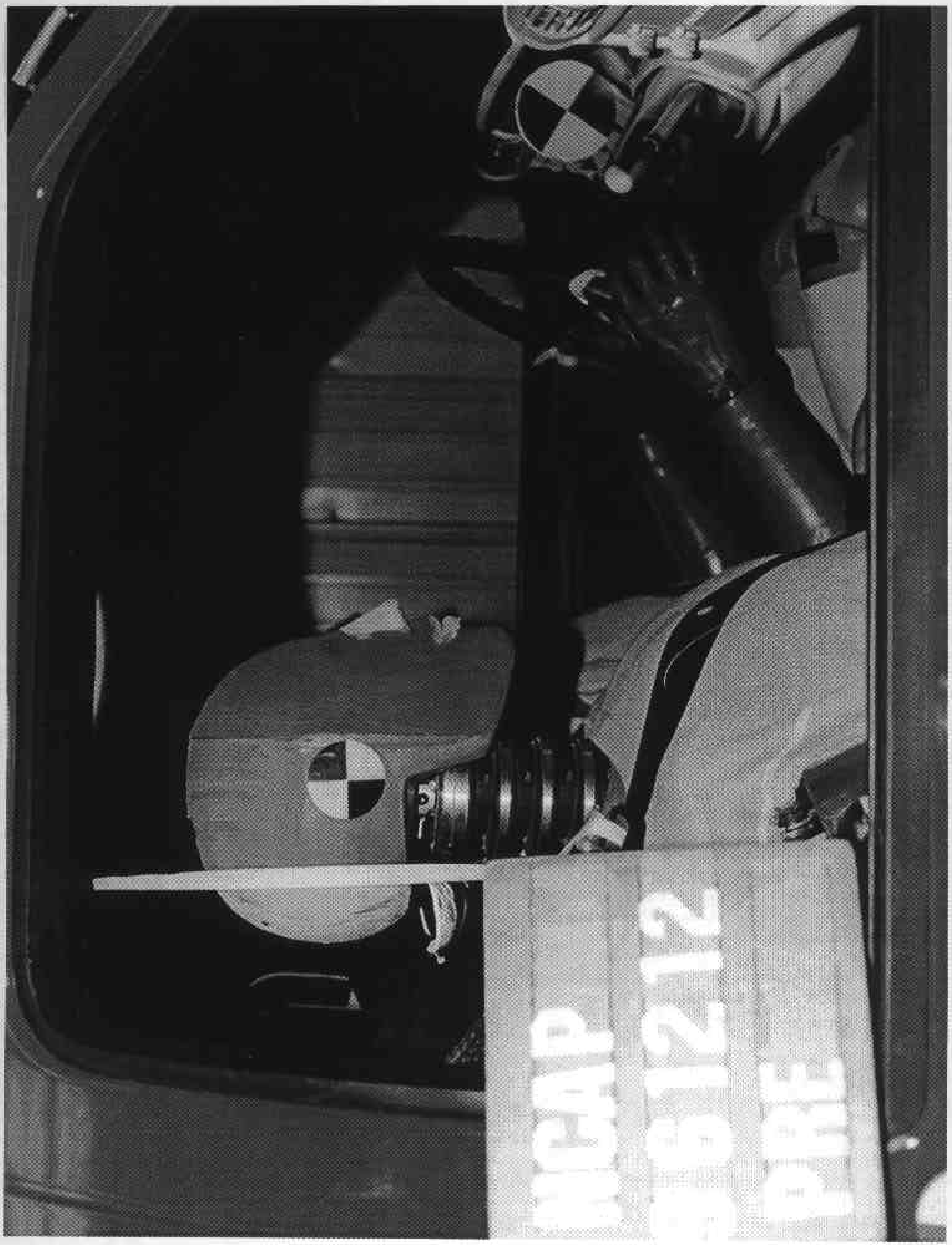


Figure A-33 Pre-Test Passenger Dummy Position View

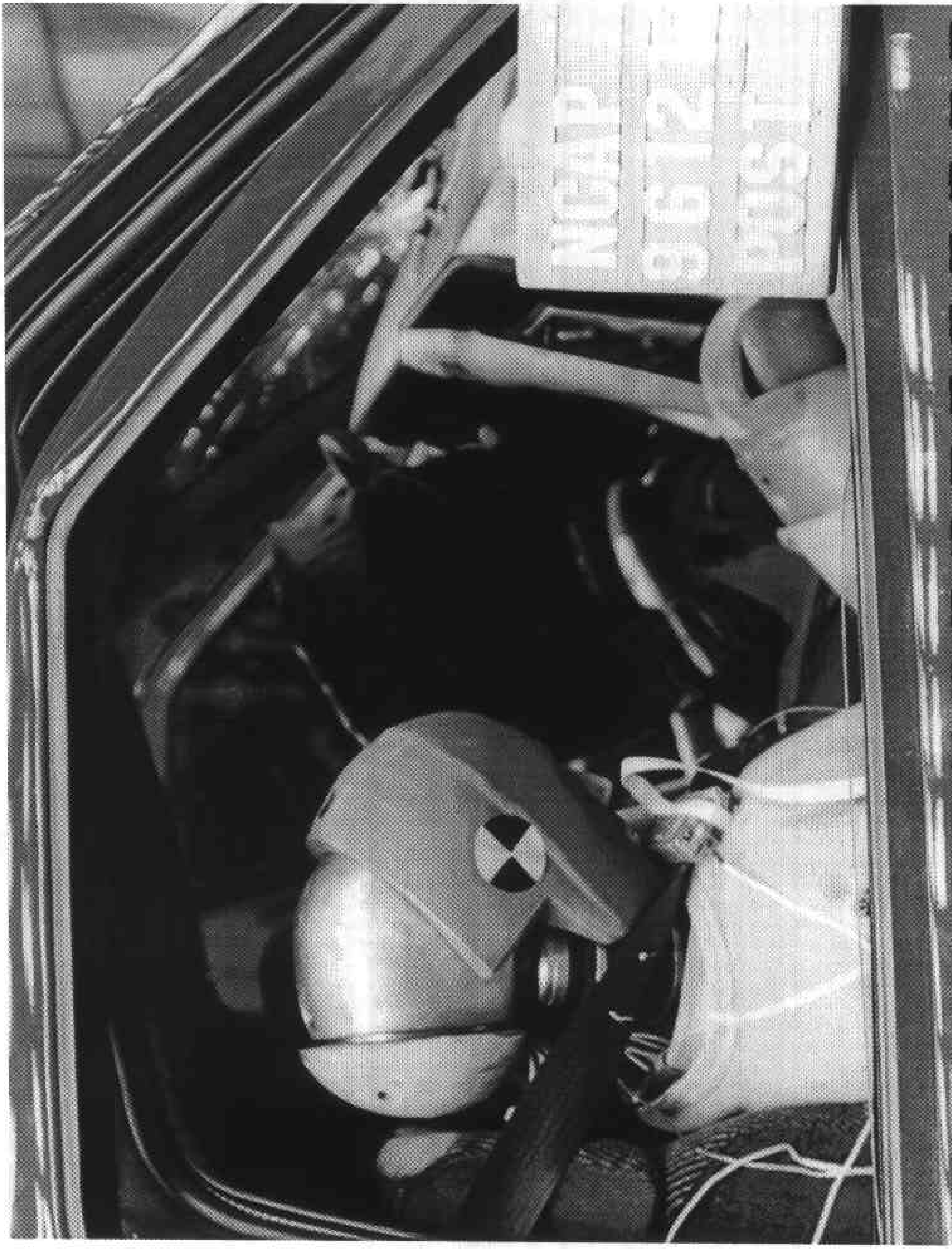


Figure A-34 Post-Test Passenger Dummy Position View

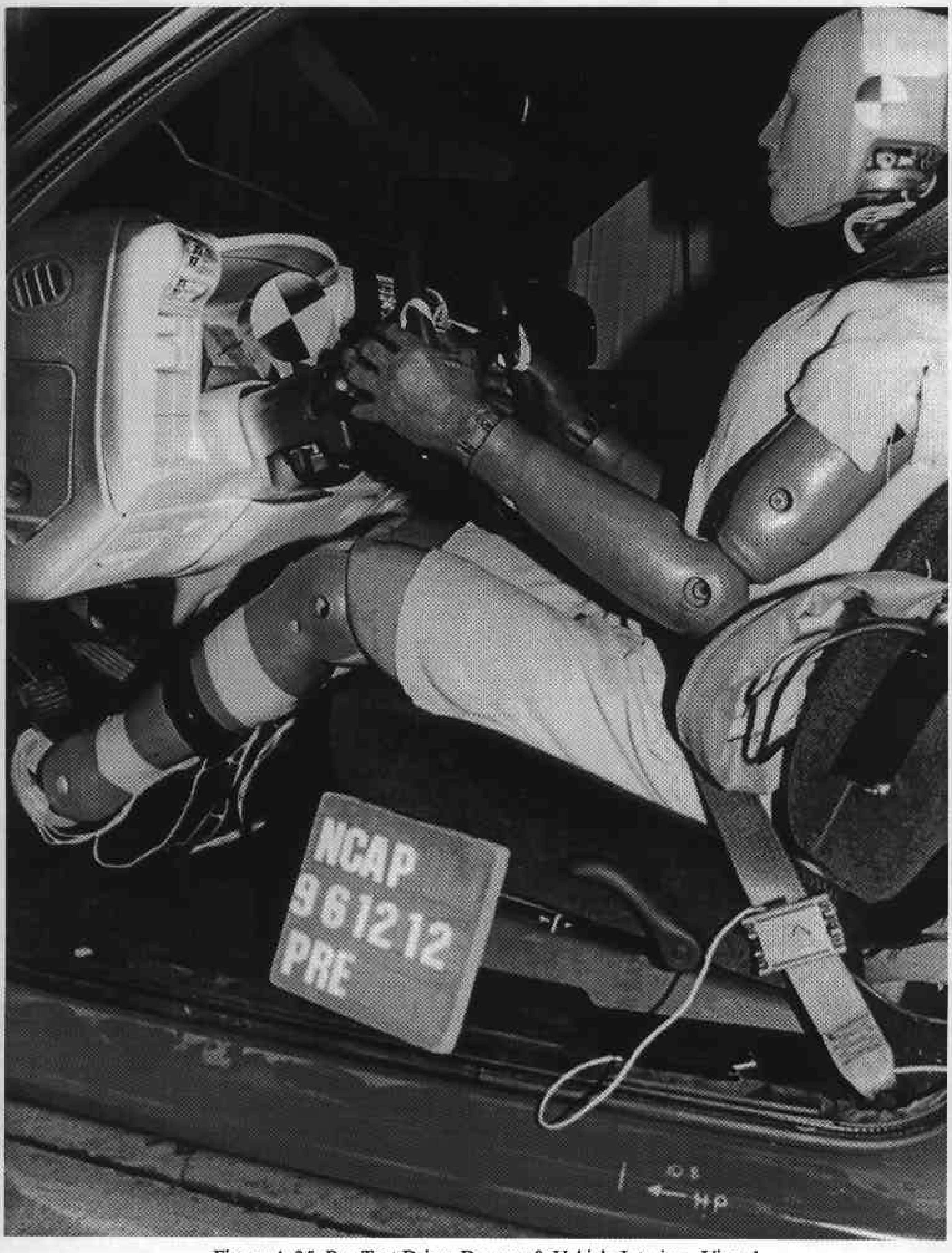


Figure A-35 Pre-Test Driver Dummy & Vehicle Interior - View 1

Figure A-36 Post-Test Driver Dummy & Vehicle Interior - View 1

Figure A-37 Pre-Test Driver Dummy & Vehicle Interior - View 2

Figure A-38 Post-Test Driver Dummy & Vehicle Interior - View 2

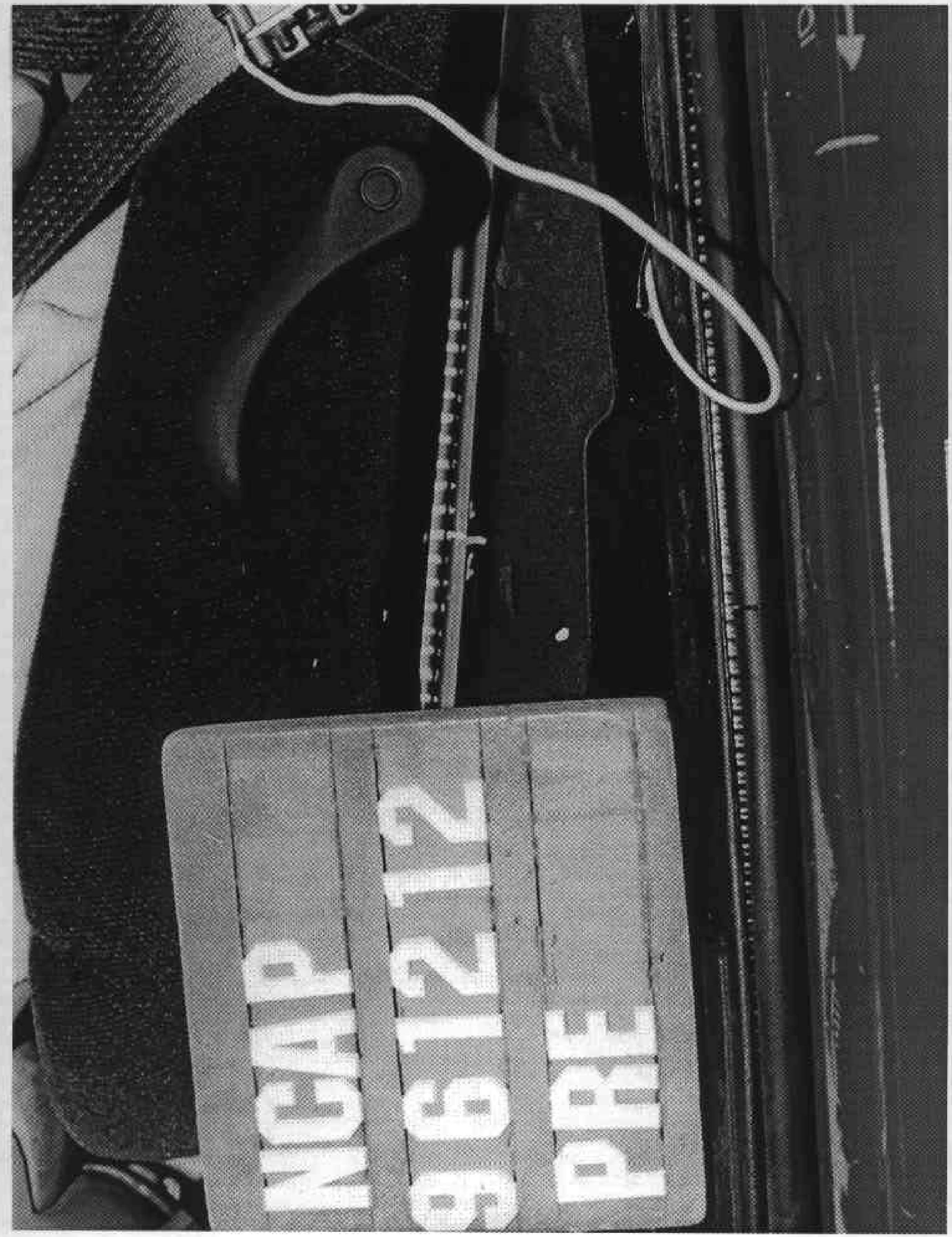


Figure A-39 Pre-Test Driver Seat Track Position View

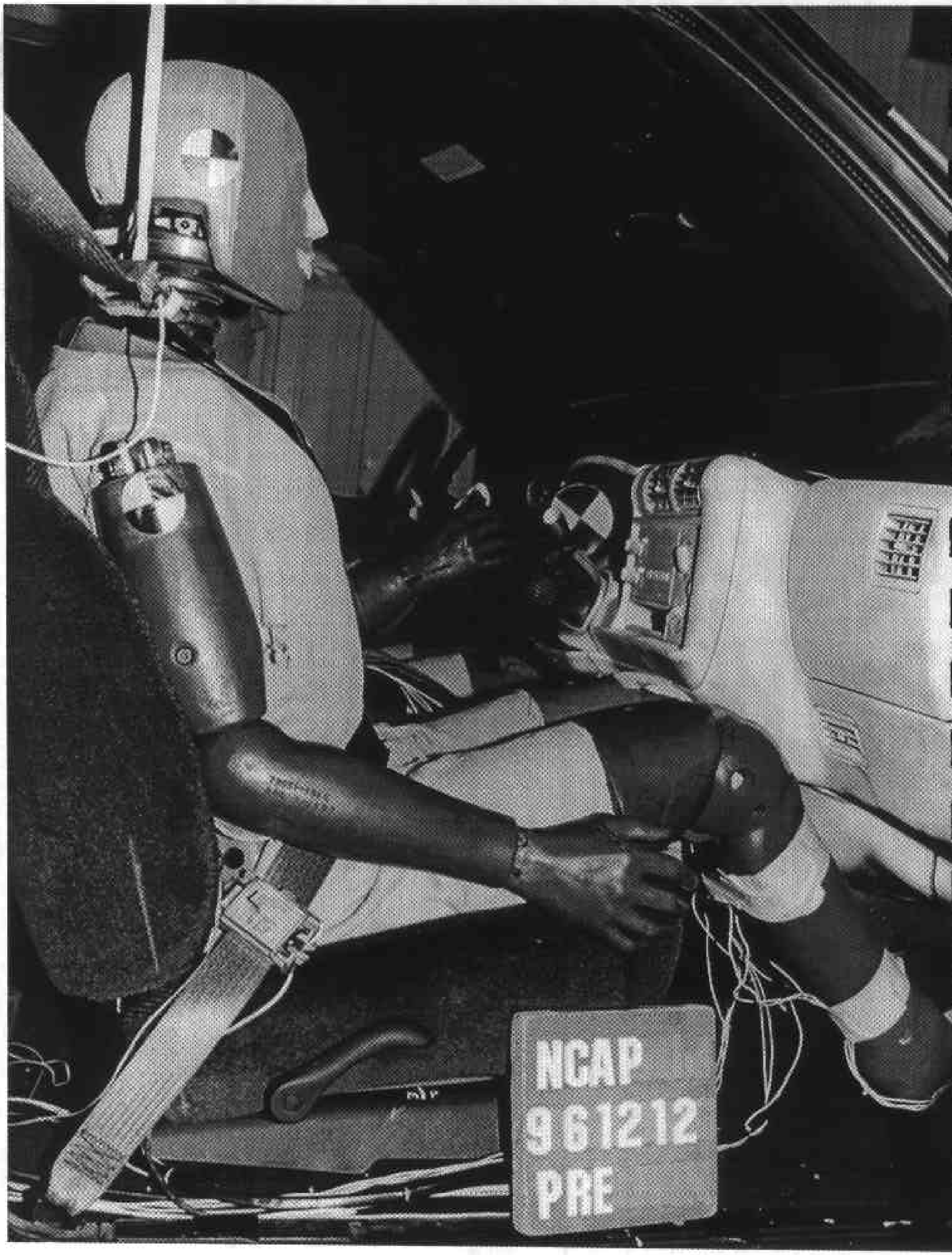


Figure A-40 Pre-Test Passenger Dummy & Vehicle Interior - View 1

Figure A-41 Post-Test Passenger Dummy & Vehicle Interior - View 1

Figure A-42 Pre-Test Passenger Dummy & Vehicle Interior - View 2

Figure A-43 Post-Test Passenger Dummy & Vehicle Interior - View 2

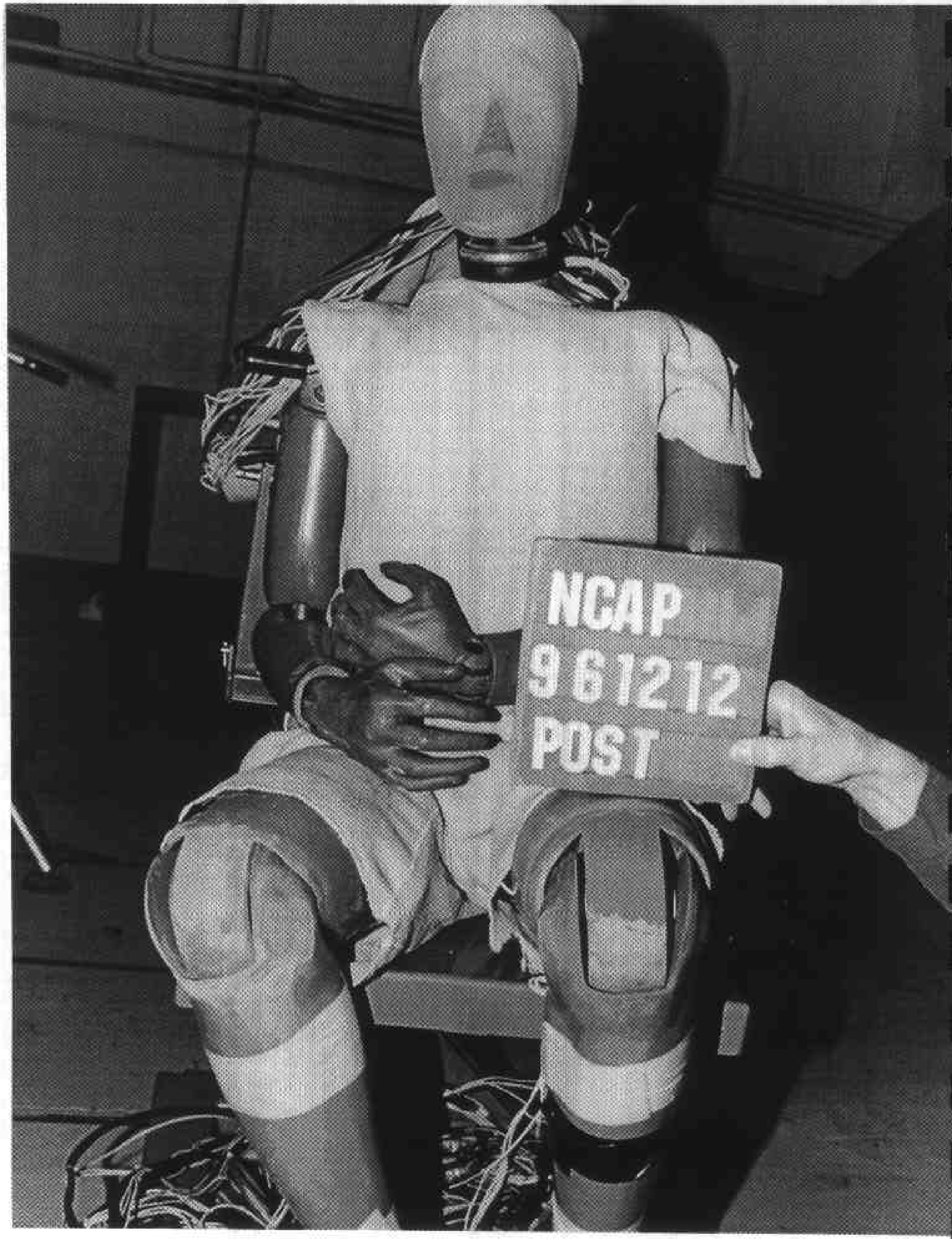


Figure A-44 Post-Test Driver Dummy Overall View

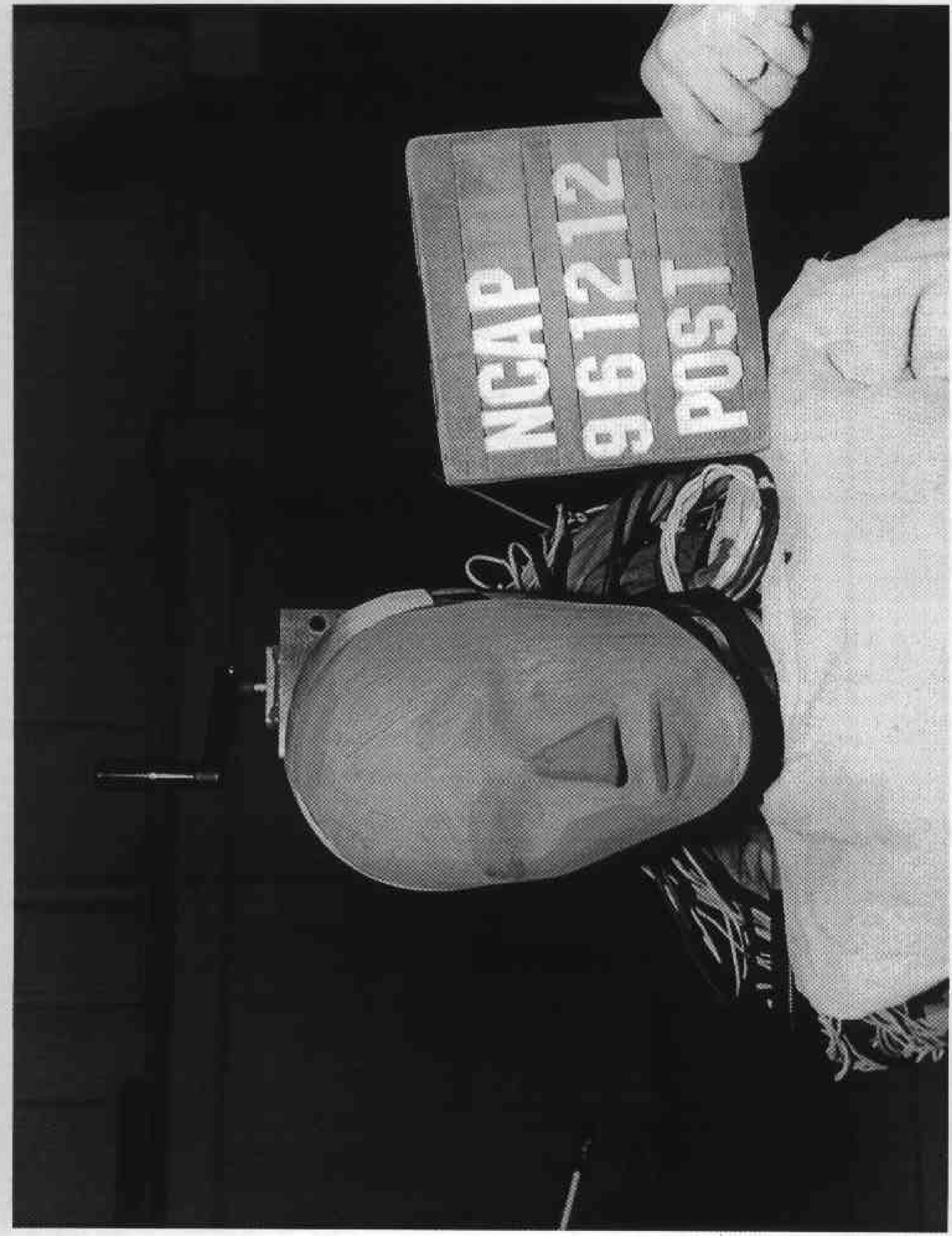


Figure A-45 Post-Test Driver Dummy Head Contact - View 1

Figure A-46 Post-Test Driver Dummy Head Contact - View 2

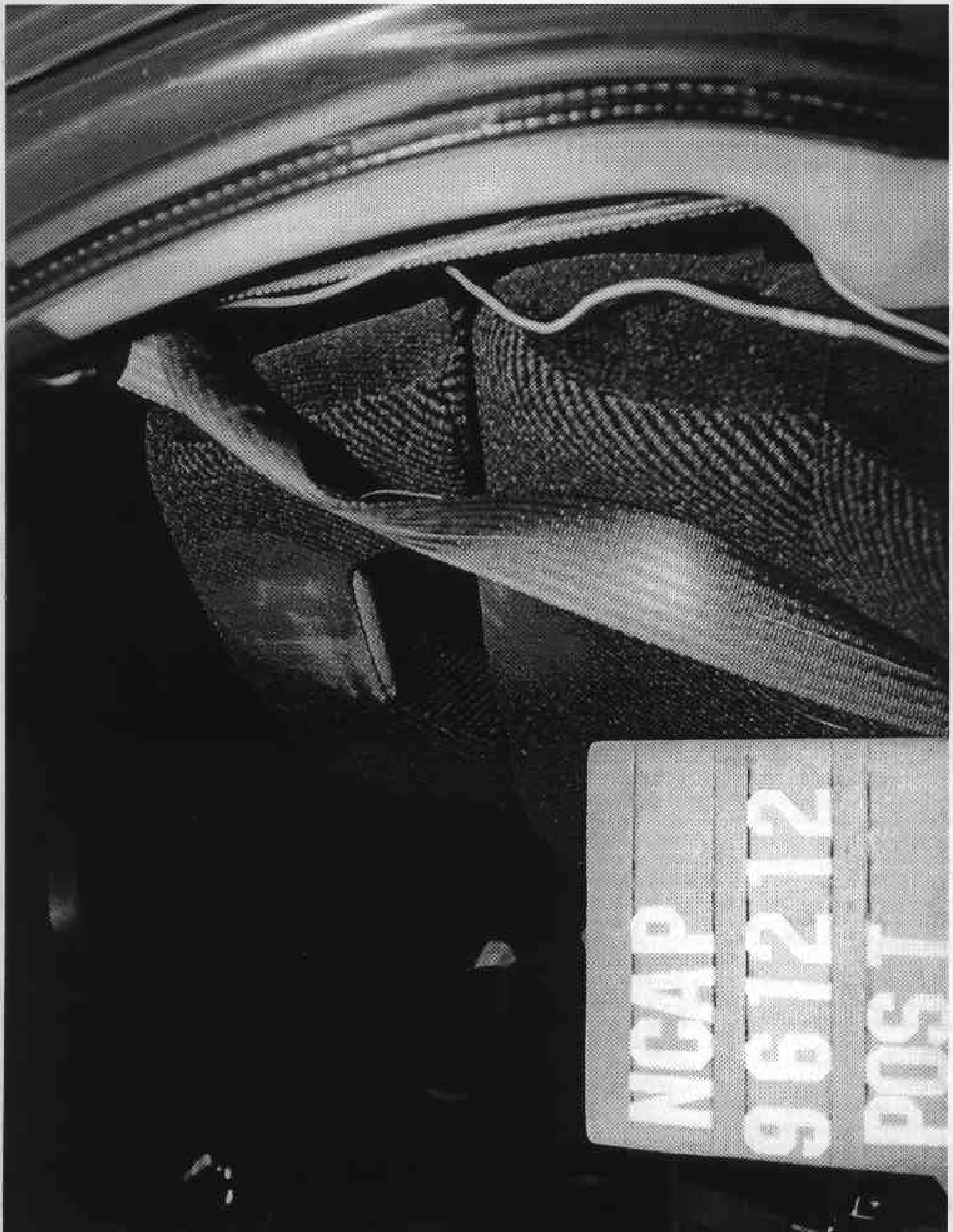


Figure A-47 Post-Test Driver Dummy Head Contact - View 3

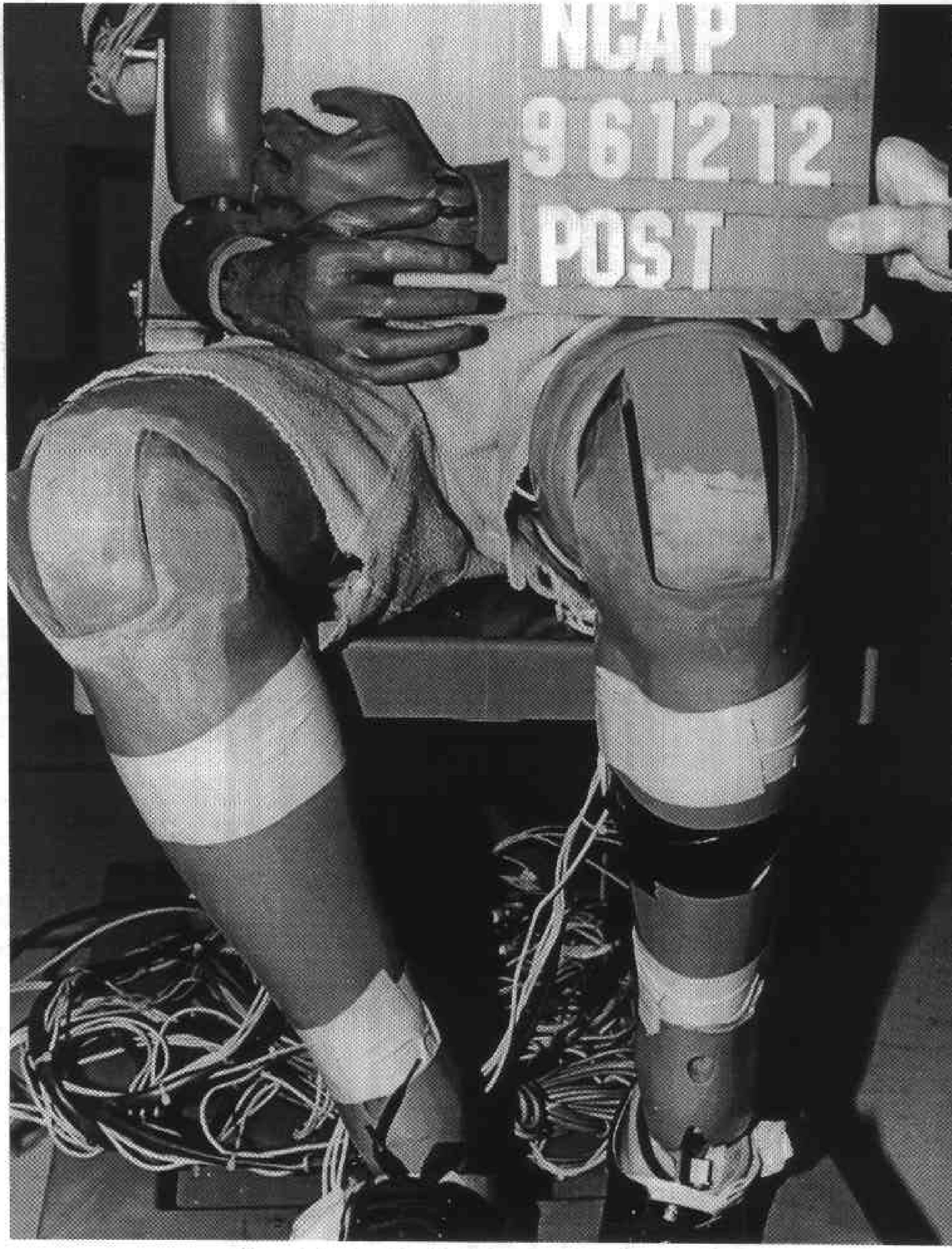


Figure A-48 Post-Test Driver Dummy Knee Contact - View 1

Figure A-49 Post-Test Driver Dummy Knee Contact - View 2

Figure A-50 Post-Test Driver Dummy Knee Contact - View 3

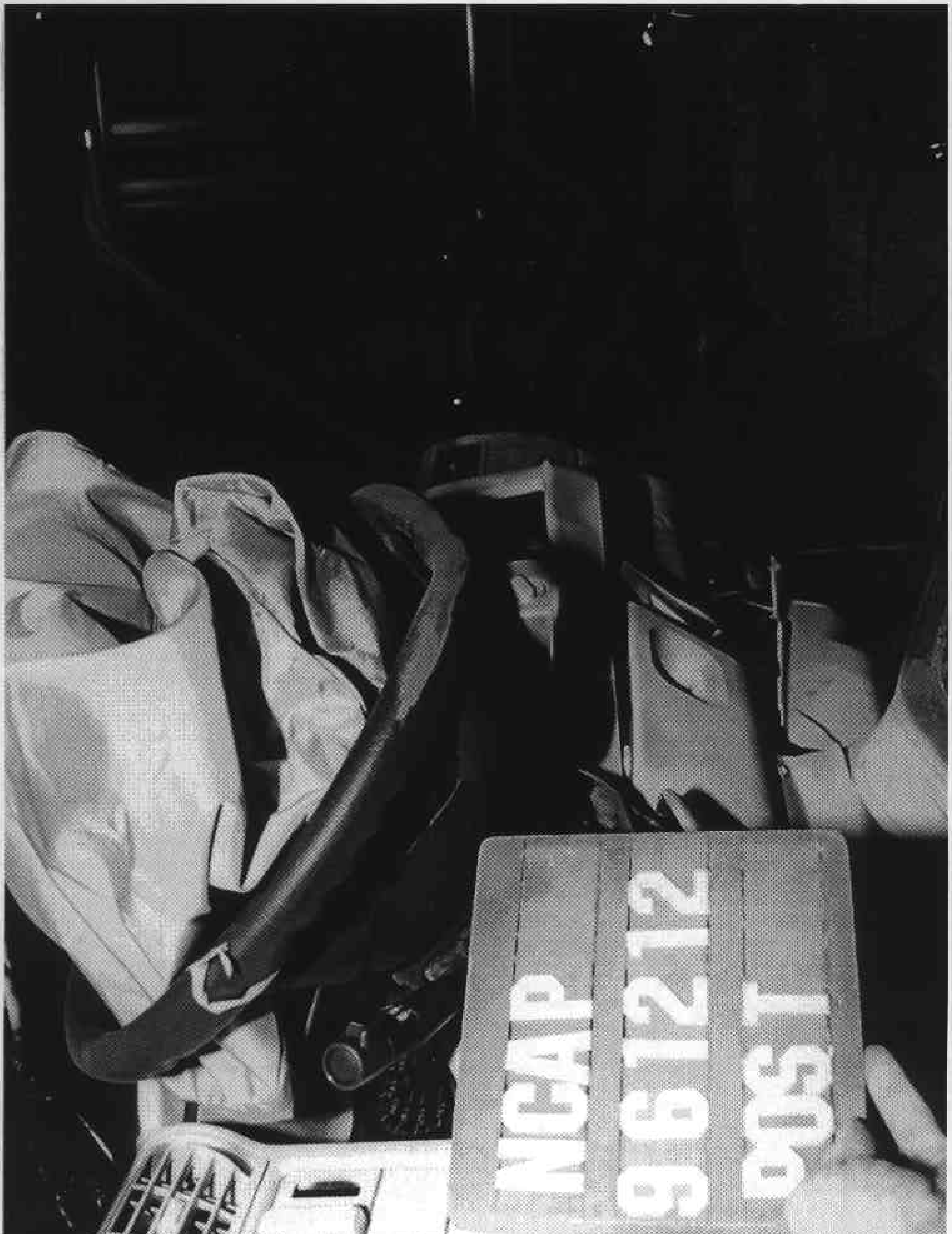


Figure A-51 Post-Test Steering Wheel Deformation

Figure A-52 Post-Test Passenger Dummy Overall View

Figure A-53 Post-Test Passenger Dummy Head Contact - View 1

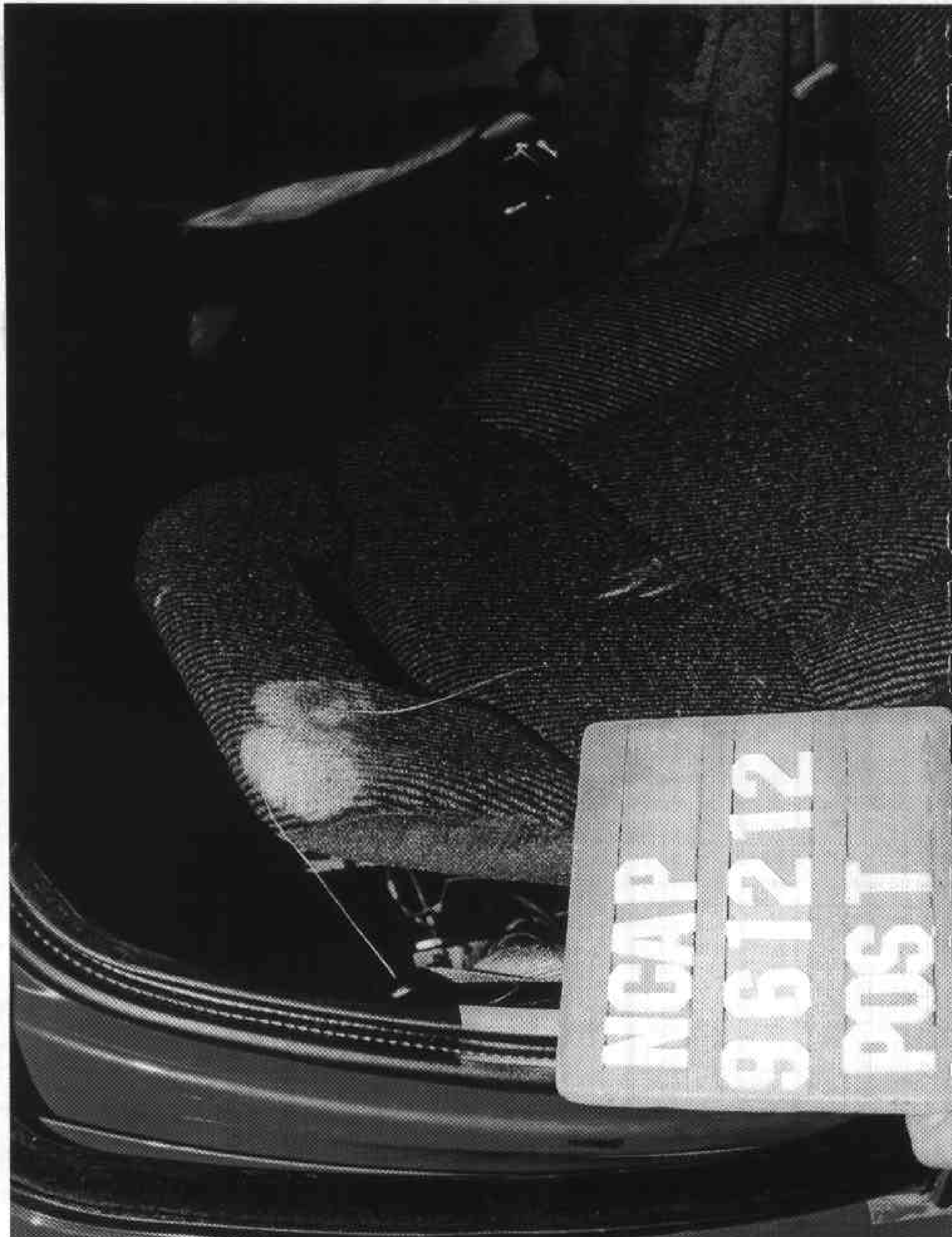


Figure A-54 Post-Test Passenger Dummy Head Contact - View 2

Figure A-55 Post-Test Passenger Dummy Knee Contact - View 1

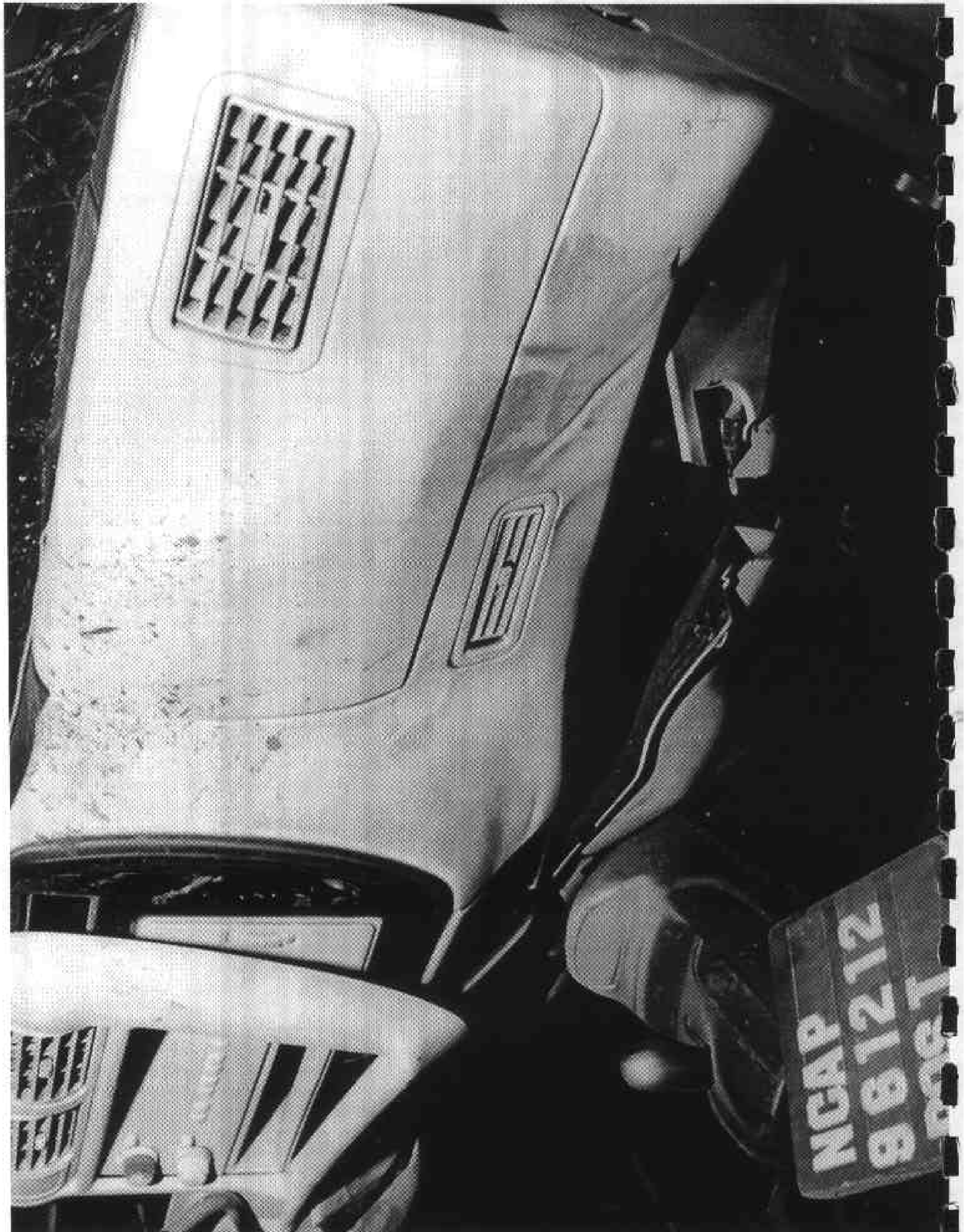


Figure A-56 Post-Test Passenger Dummy Knee Contact - View 2

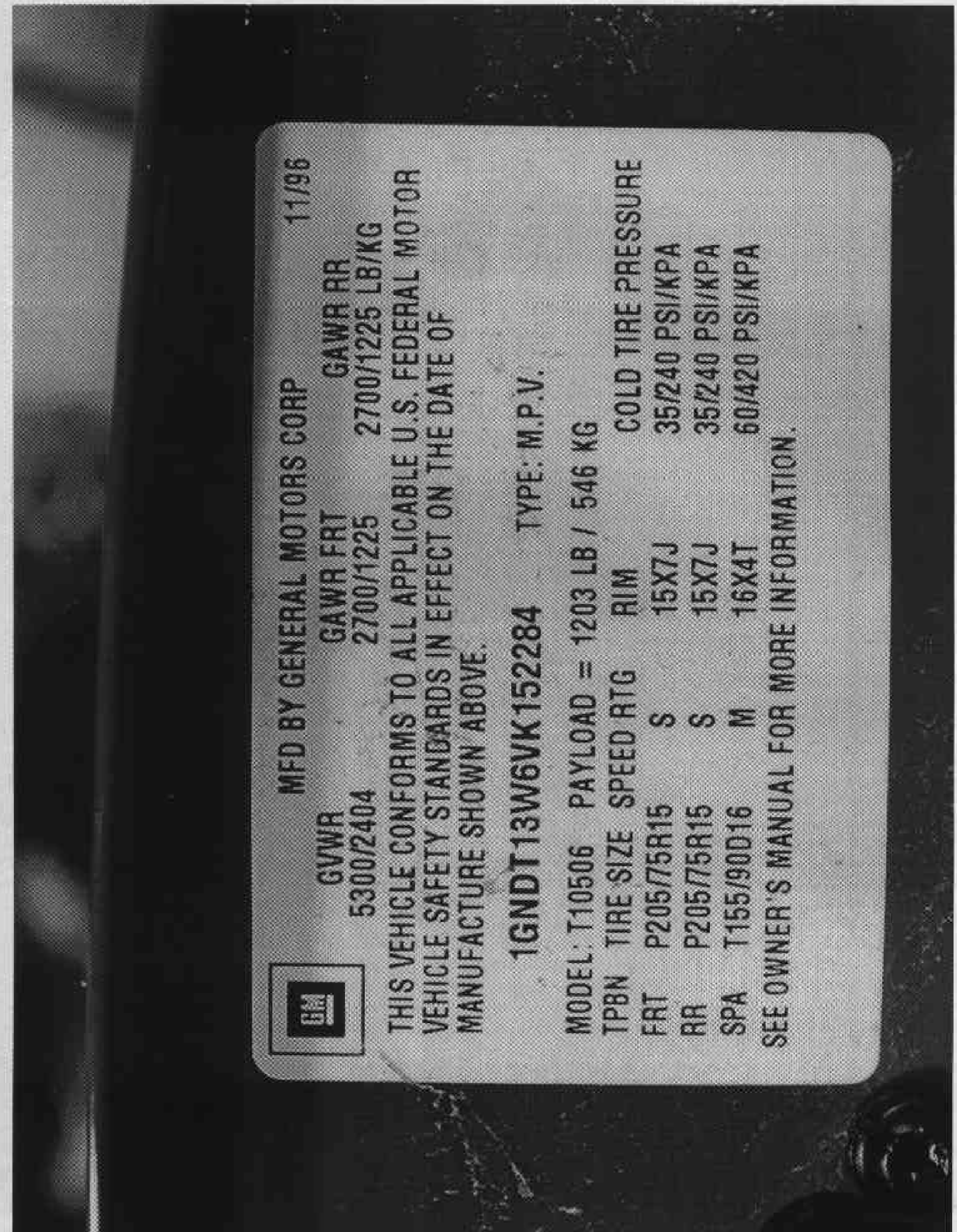


Figure A-57 Pre-Test Vehicle Certification Label View

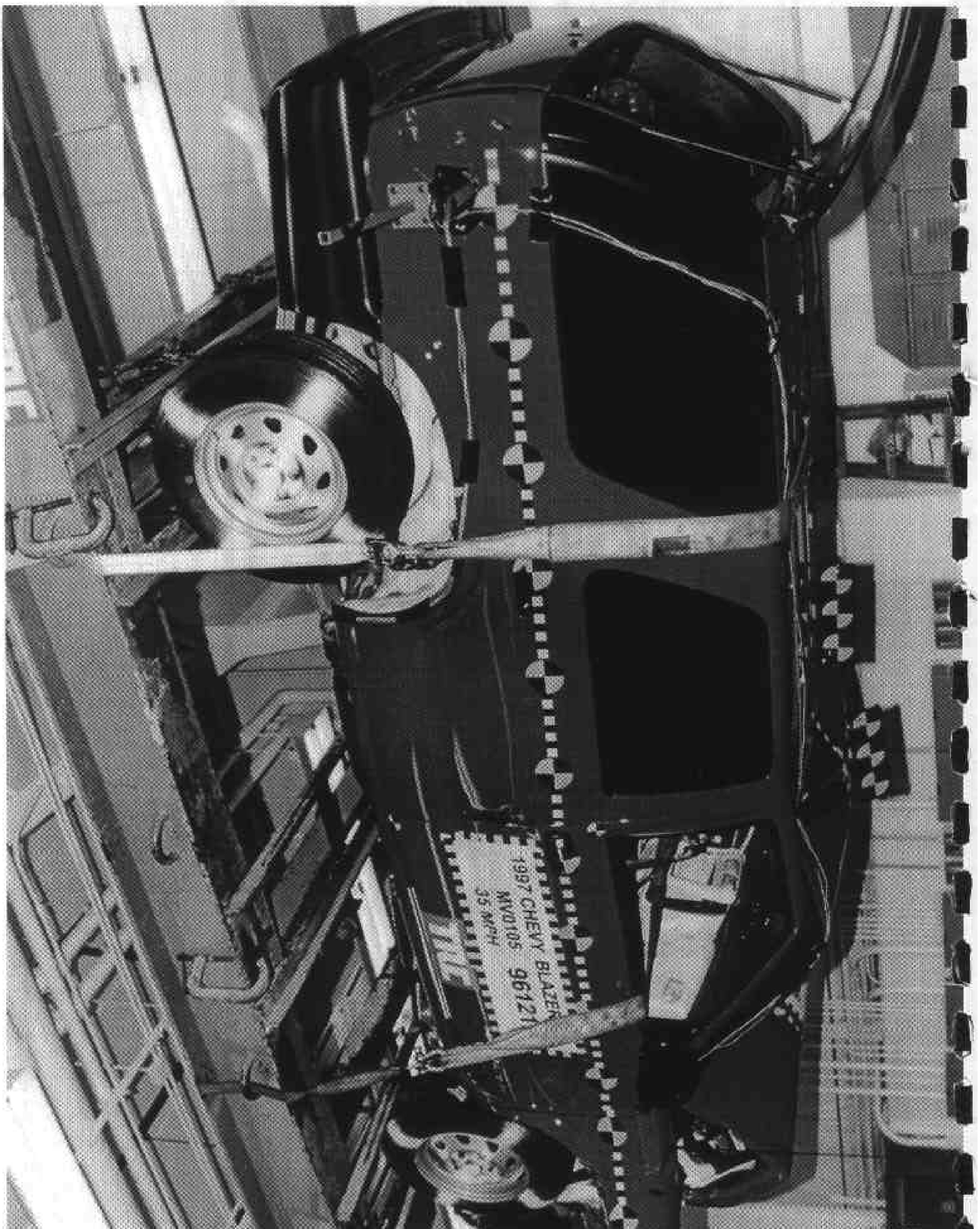


Figure A-58 Post-Test Vehicle On Static Rollover Machine View

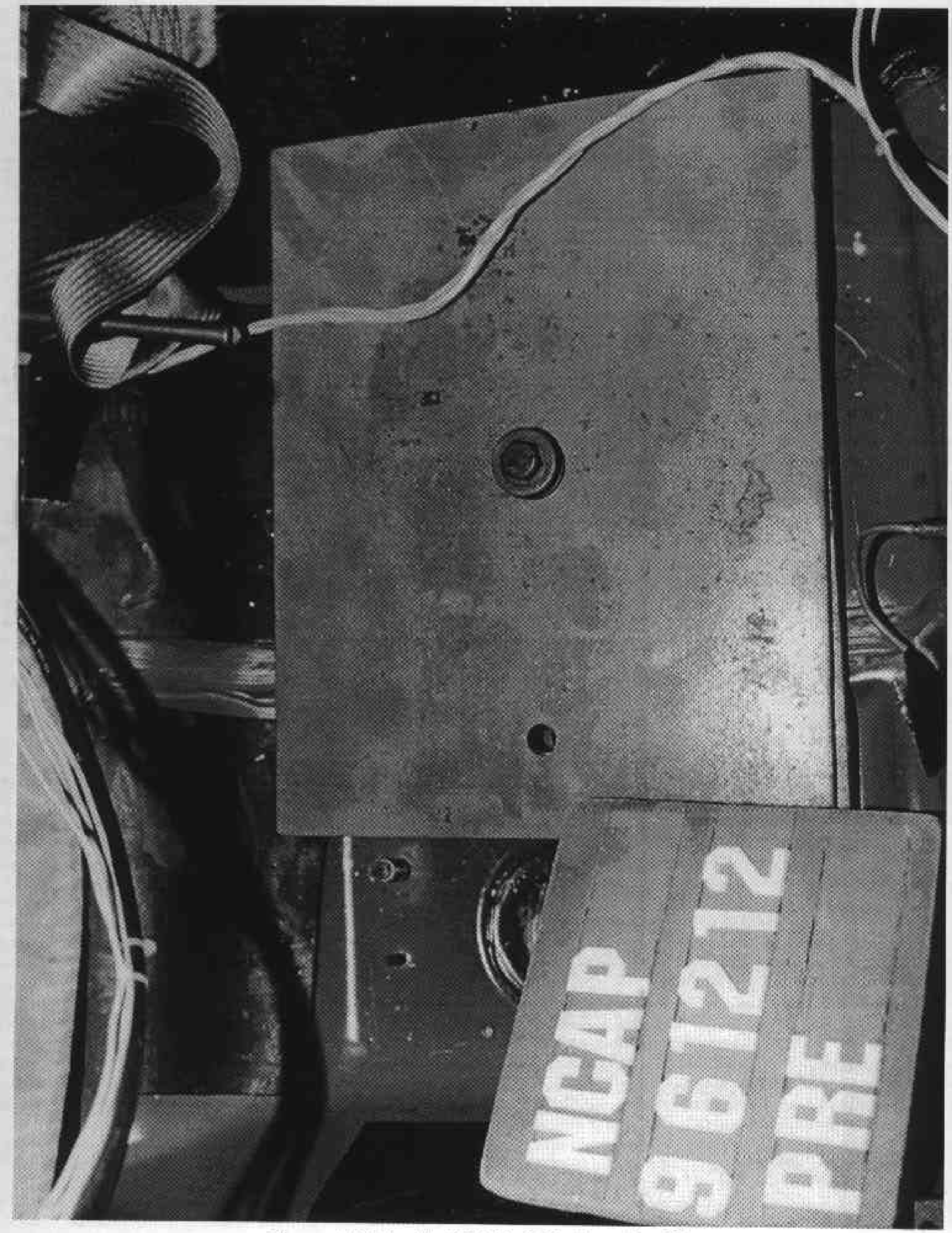


Figure A-59 Pre-Test Vehicle Ballast Location View

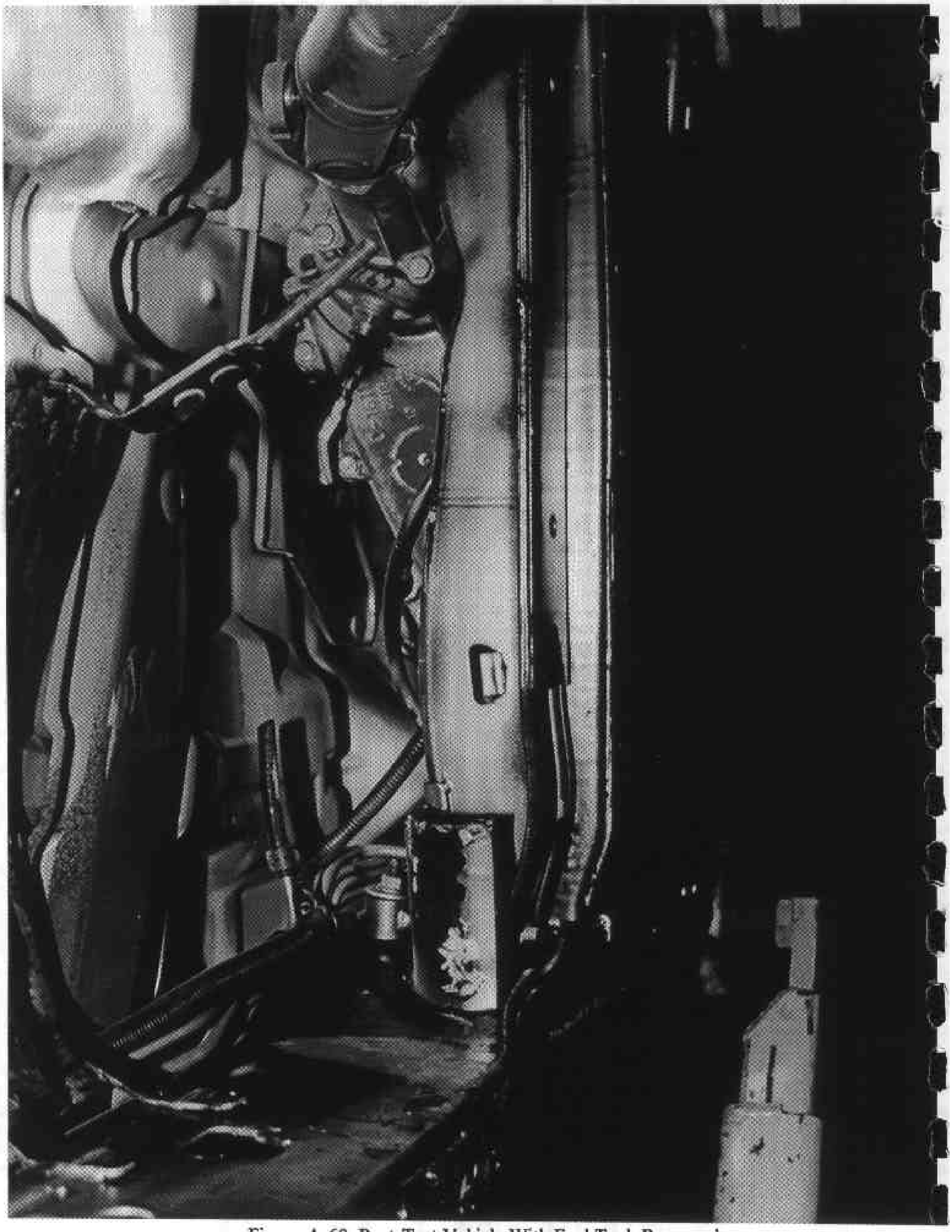


Figure A-60 Post-Test Vehicle With Fuel Tank Removed

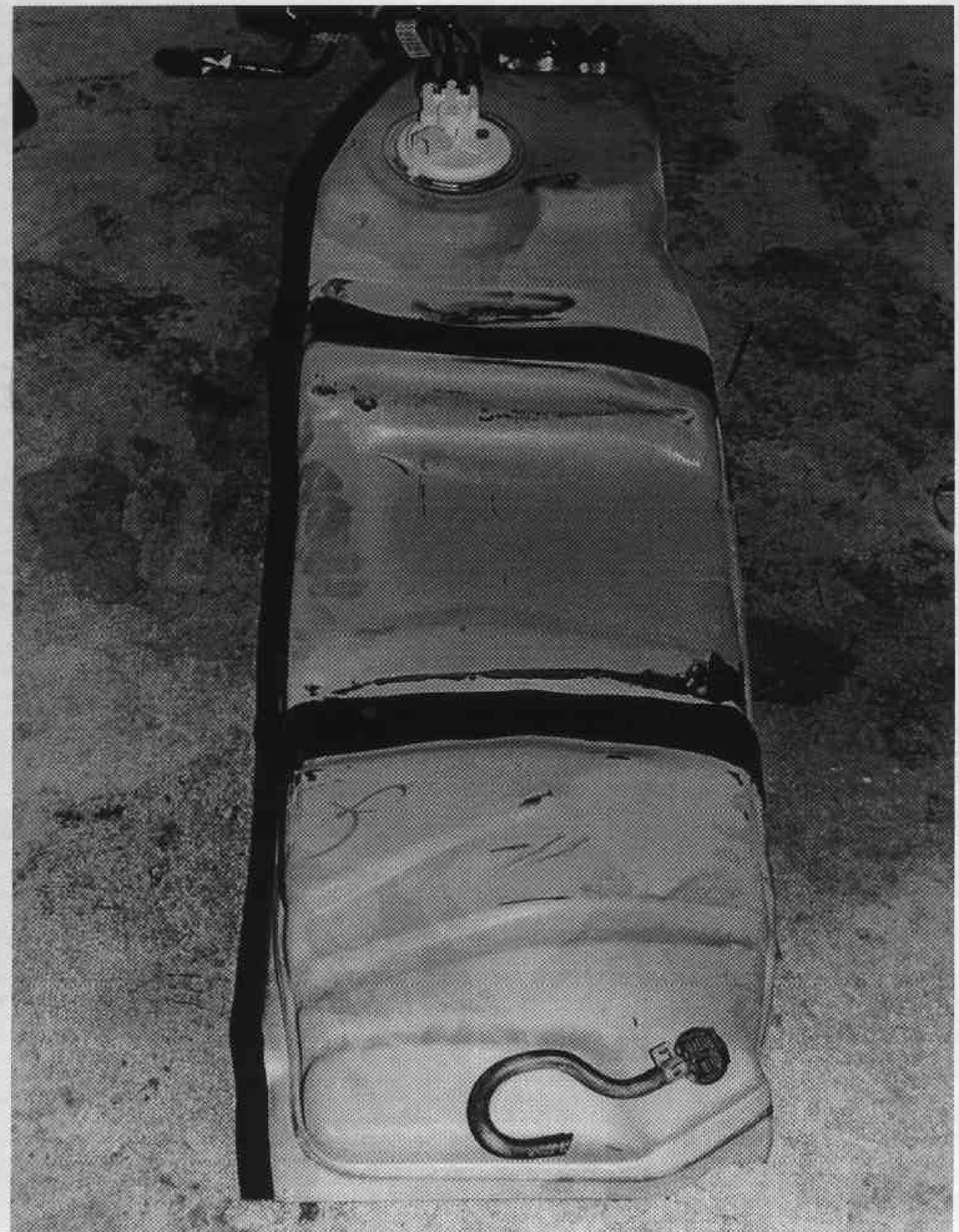


Figure A-61 Post-Test Fuel Tank Removed From Vehicle - View 1

Figure A-62 Post-Test Fuel Tank Removed From Vehicle - View 2

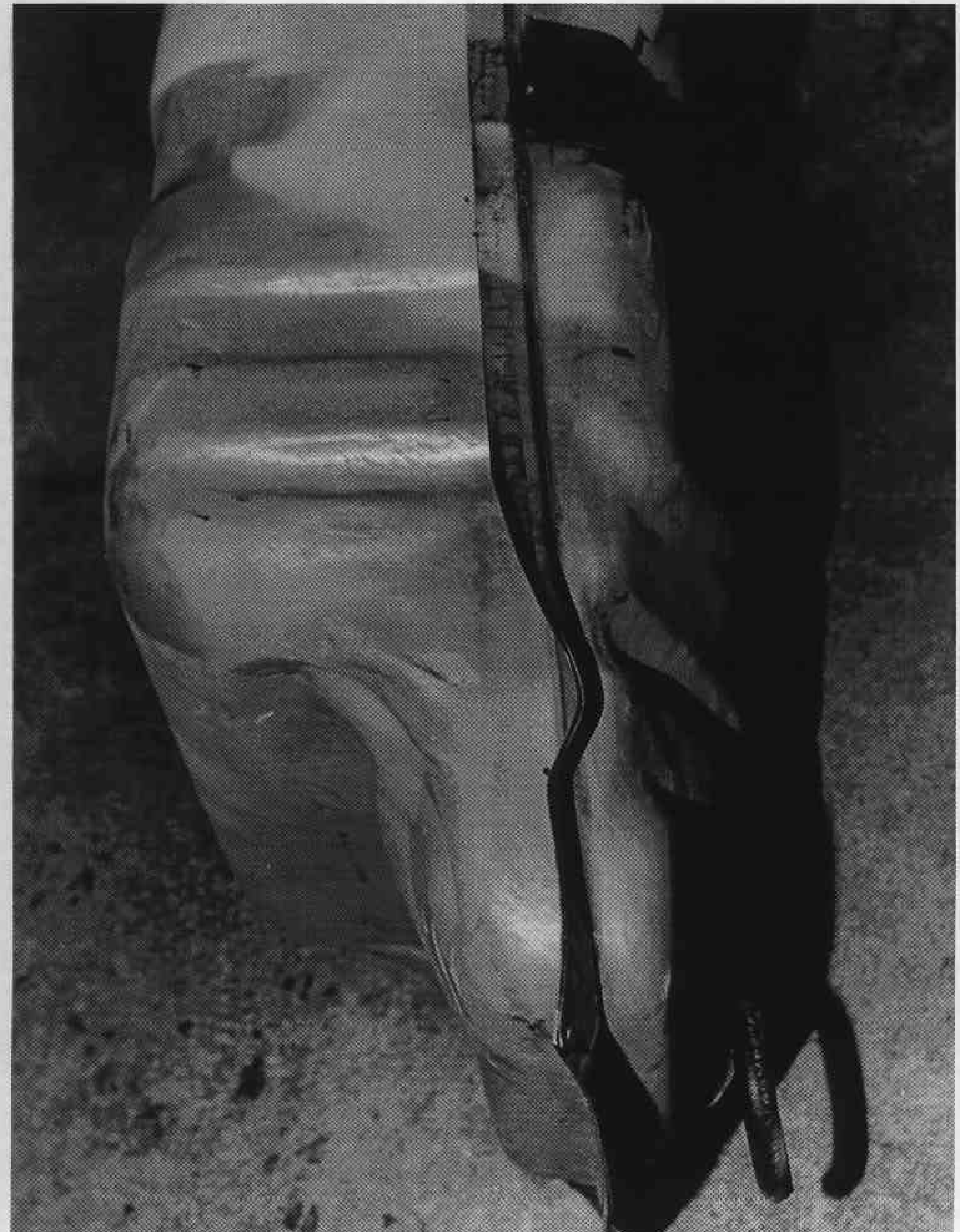


Figure A-63 Post-Test Fuel Tank Removed From Vehicle - View 3

Figure A-64 Post-Test Fuel Tank Removed From Vehicle - View 4

Figure A-65 Post-Test Fuel Tank Removed From Vehicle - View 5

Figure A-66 Post-Test Fuel Tank Removed From Vehicle - View 6

Figure A-67 Post-Test Fuel Tank Removed From Vehicle - View 7

Figure A-68 Fuel System Spillage First 5 Minutes

Figure A-69 Fuel System Spillage First 30 Minutes - Group 1

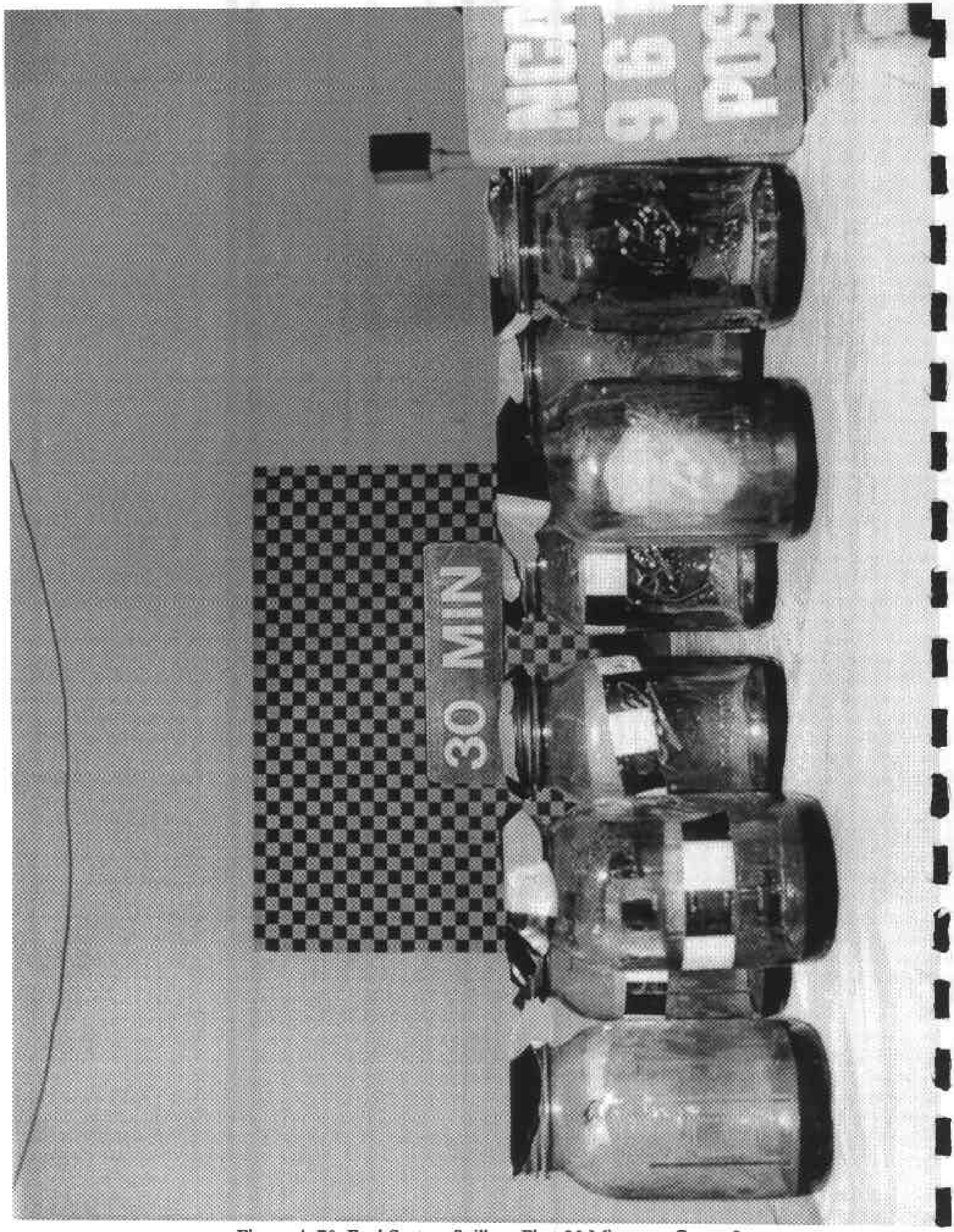


Figure A-70 Fuel System Spillage First 30 Minutes - Group 2

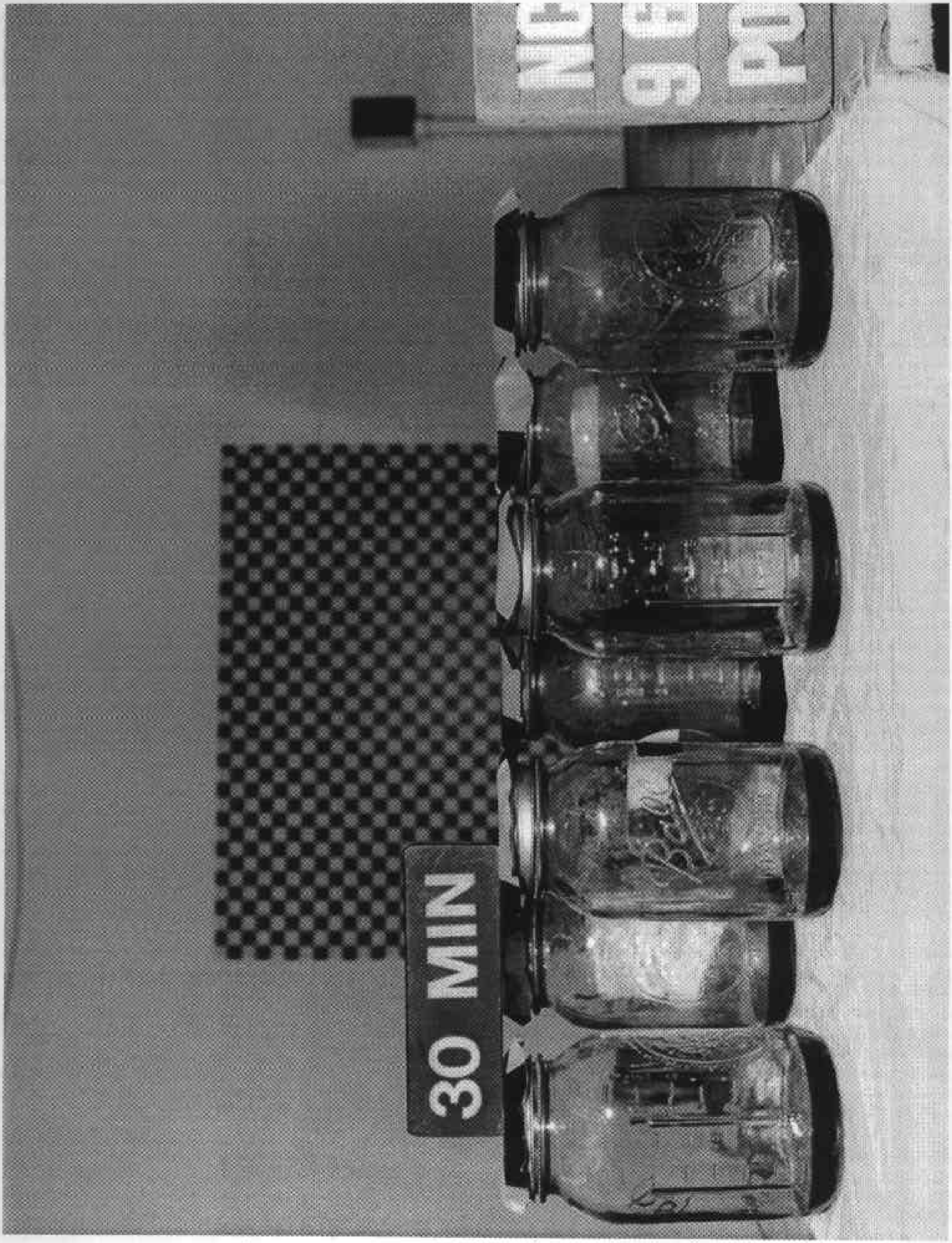


Figure A-71 Fuel System Spillage First 30 Minutes - Group 3

Figure A-72 Fuel System Spillage First 30 Minutes - Group 4

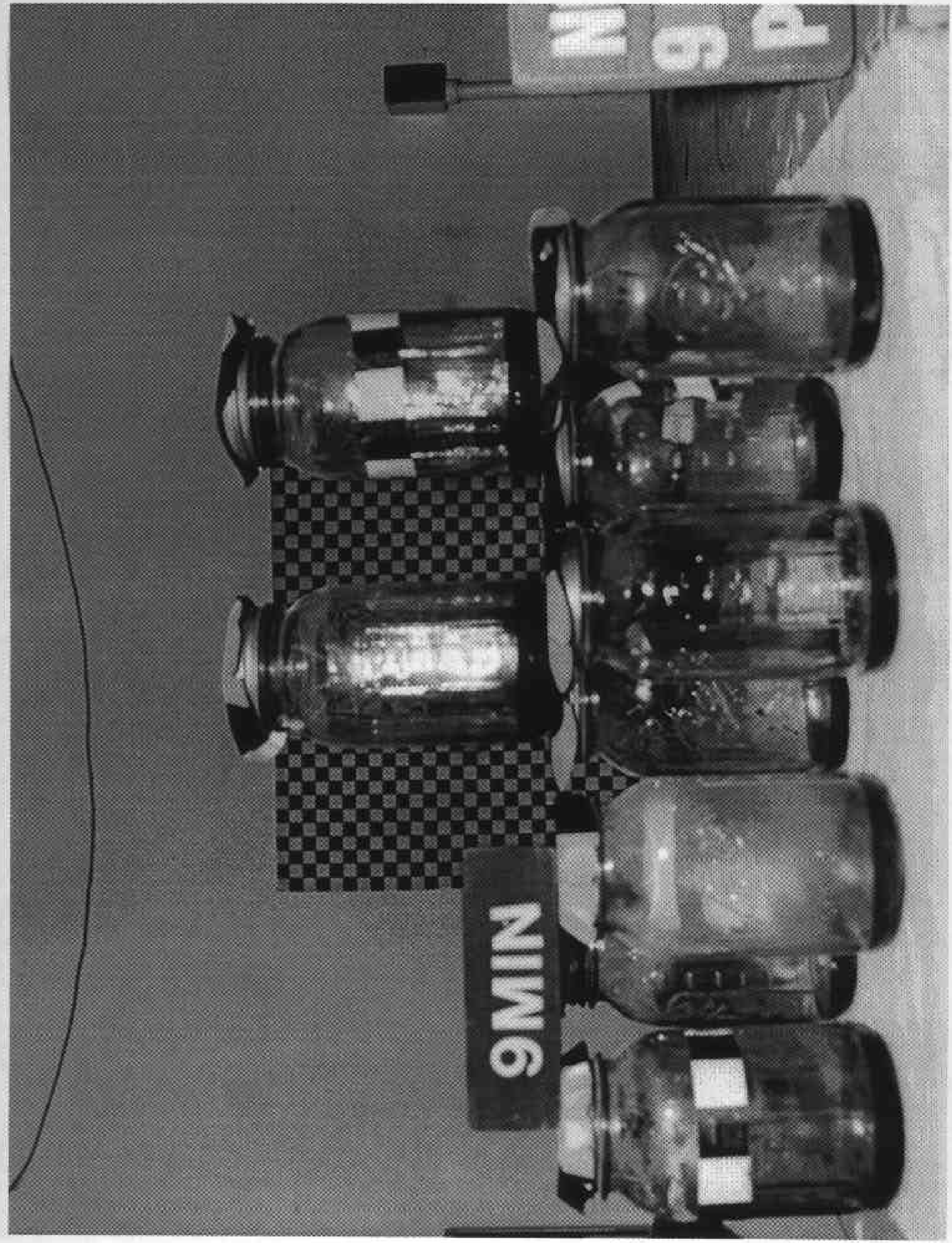


Figure A-73 Fuel System Spillage First 39 Minutes

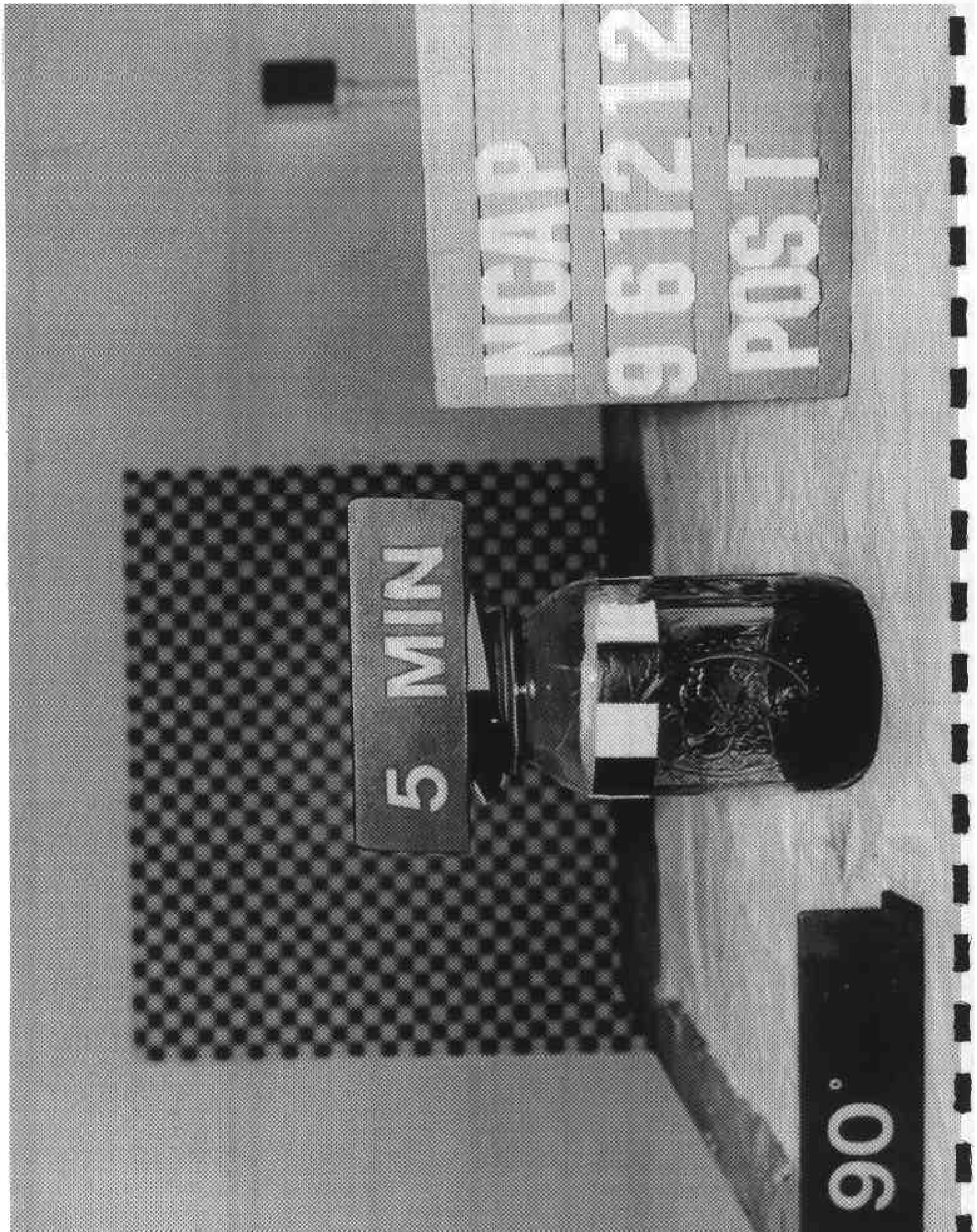


Figure A-74 Fuel System Spillage First 5 Minutes/90° Roll

Figure A-75 Fuel System Spillage First 5 Minutes/270° Roll

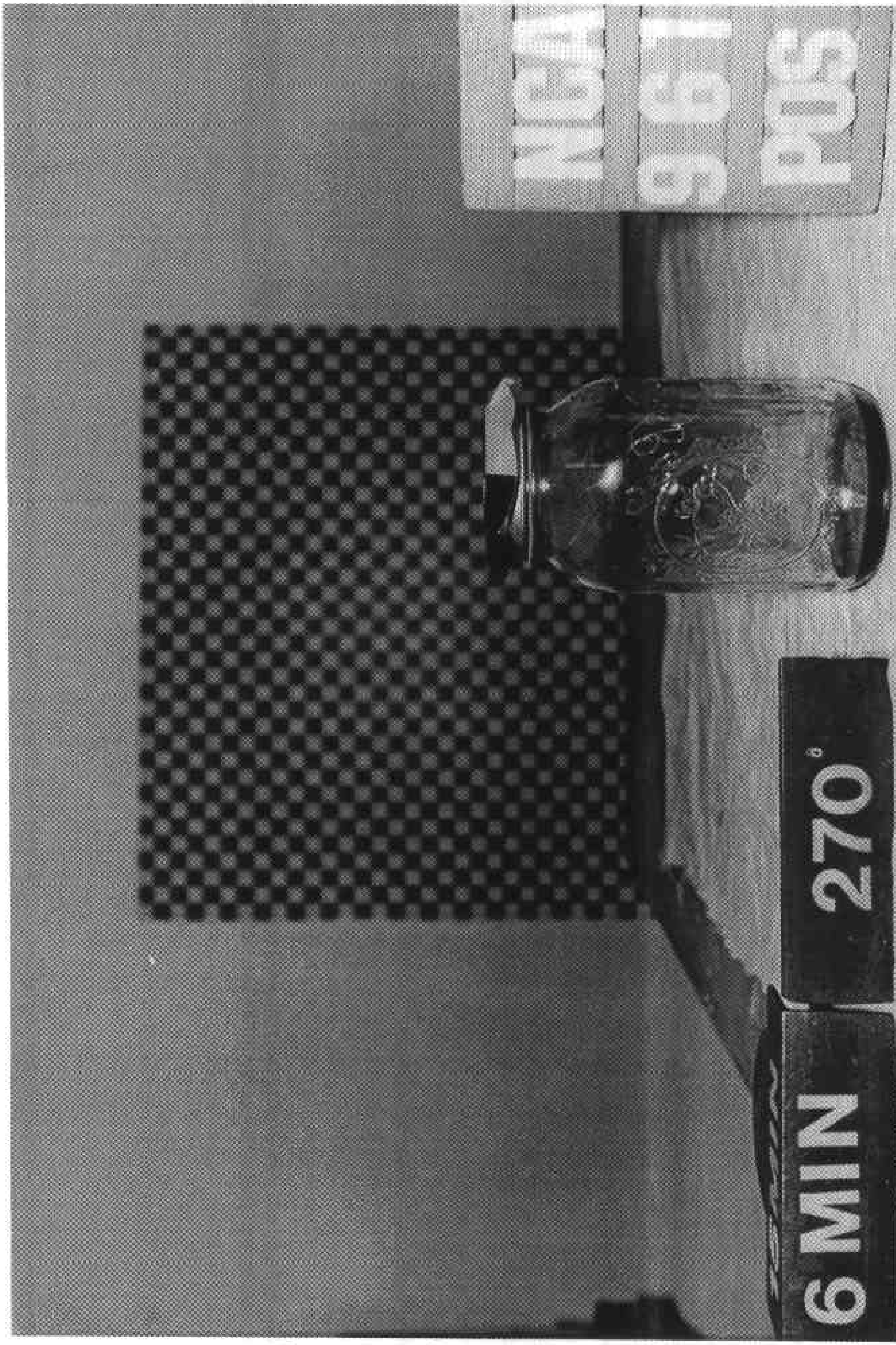


Figure A-76 Fuel System Spillage Sixth Minute/270° Roll

Figure A-77 Fuel System Spillage Seventh Minute/270° Roll

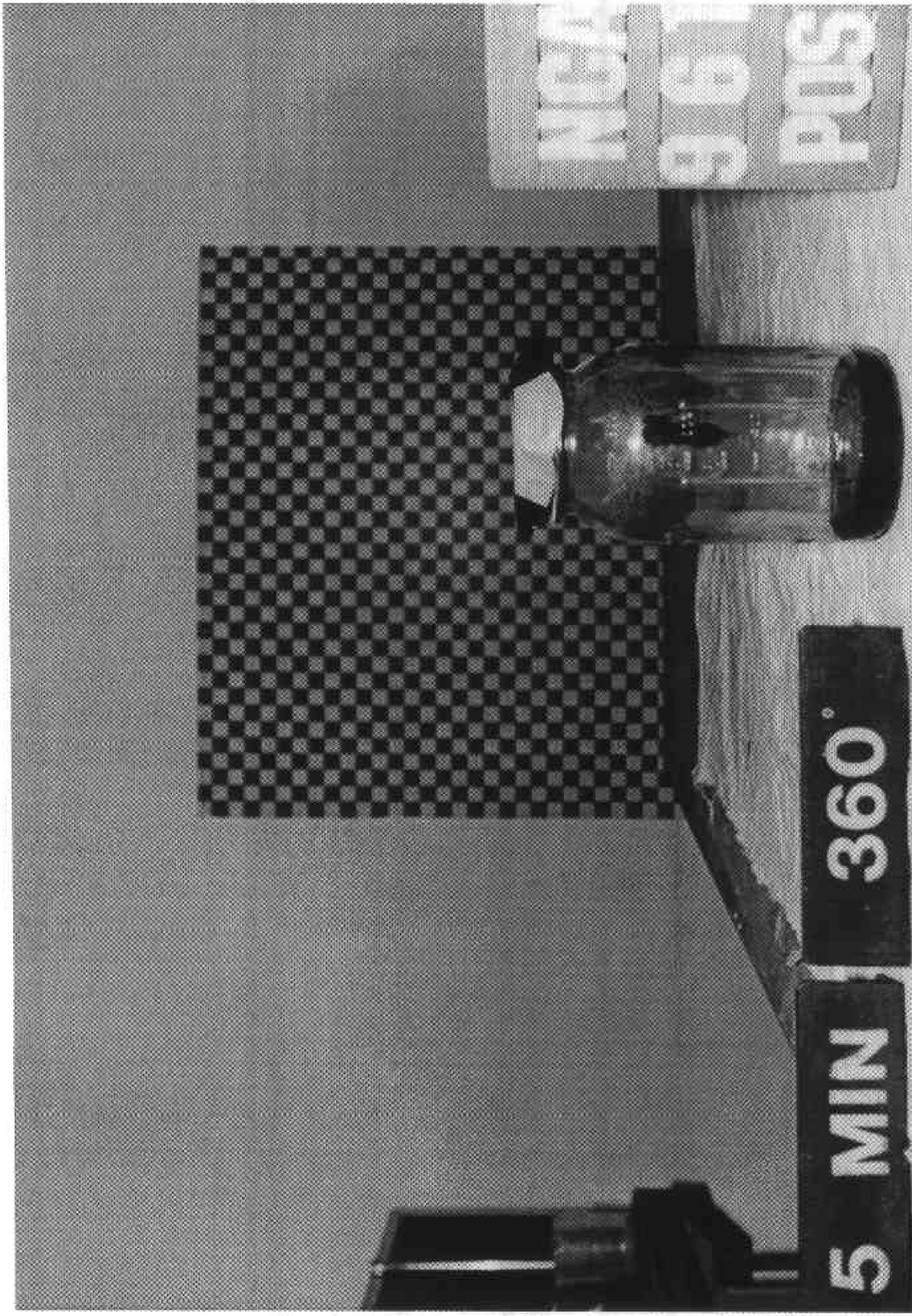


Figure A-78 Fuel System Spillage First 5 Minutes/360° Roll

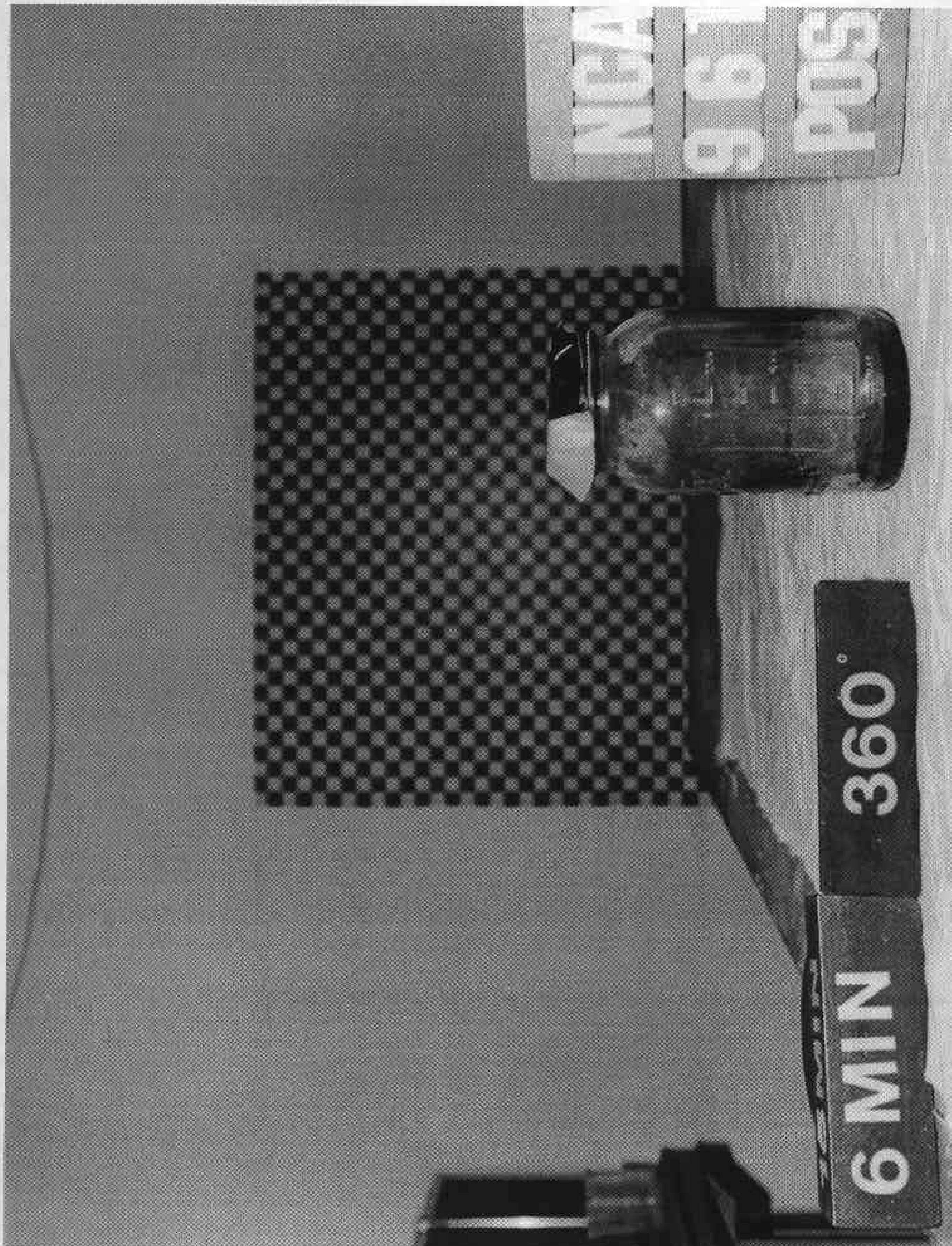


Figure A-79 Fuel System Spillage Sixth Minute/360° Roll

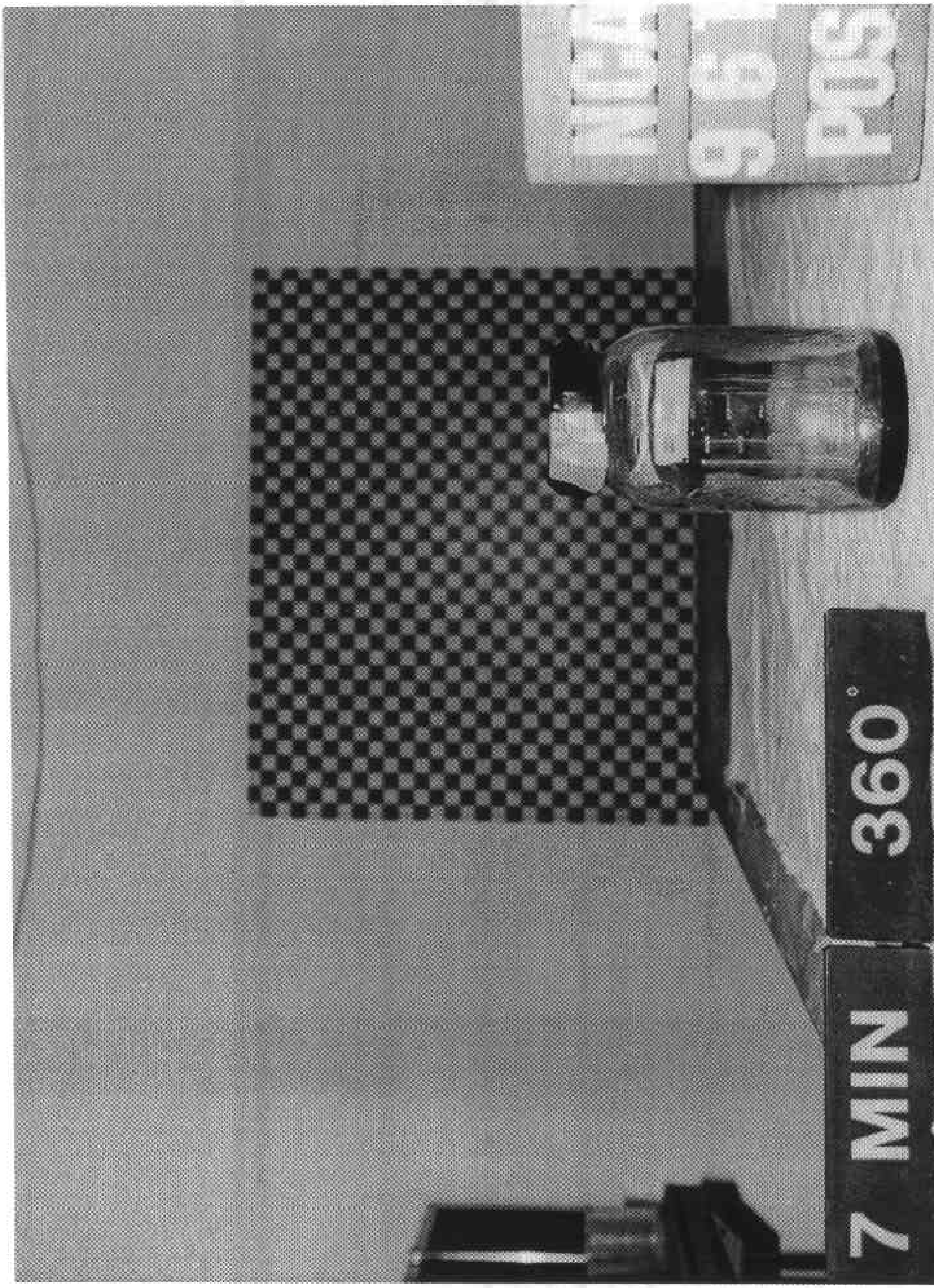


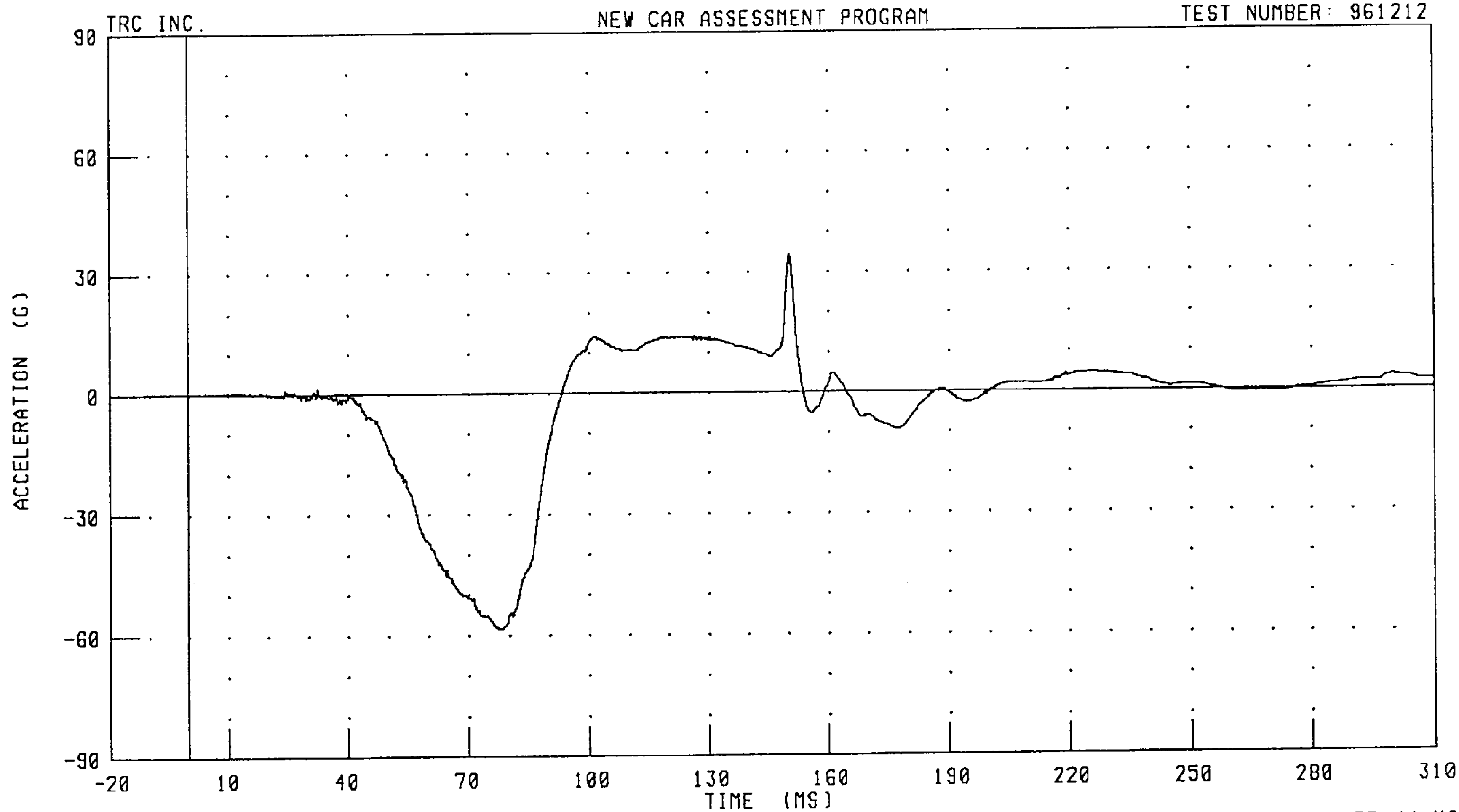
Figure A-80 Fuel System Spillage Seventh Minute/360° Roll

<u>Appendix B</u>

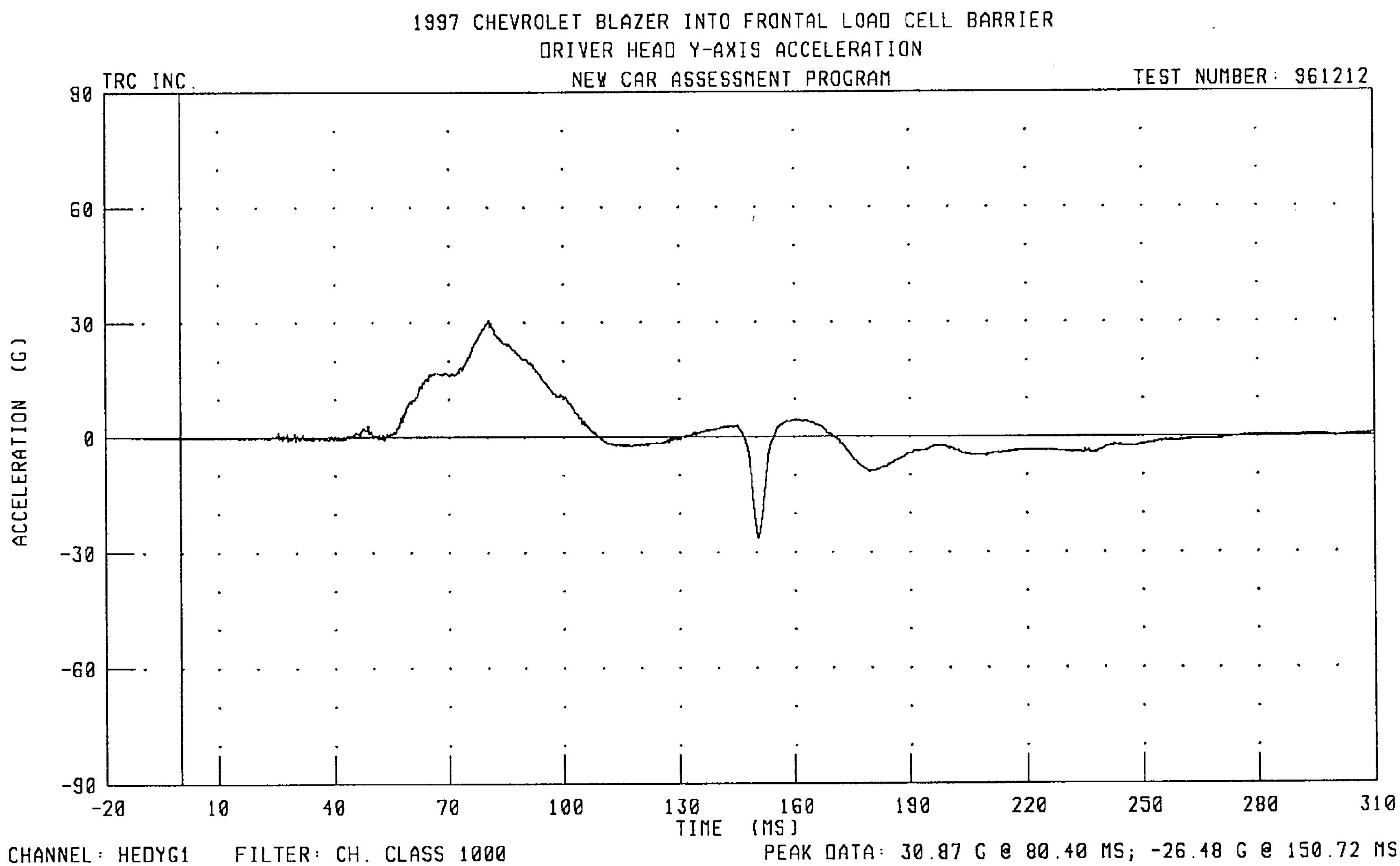
Data Plots

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

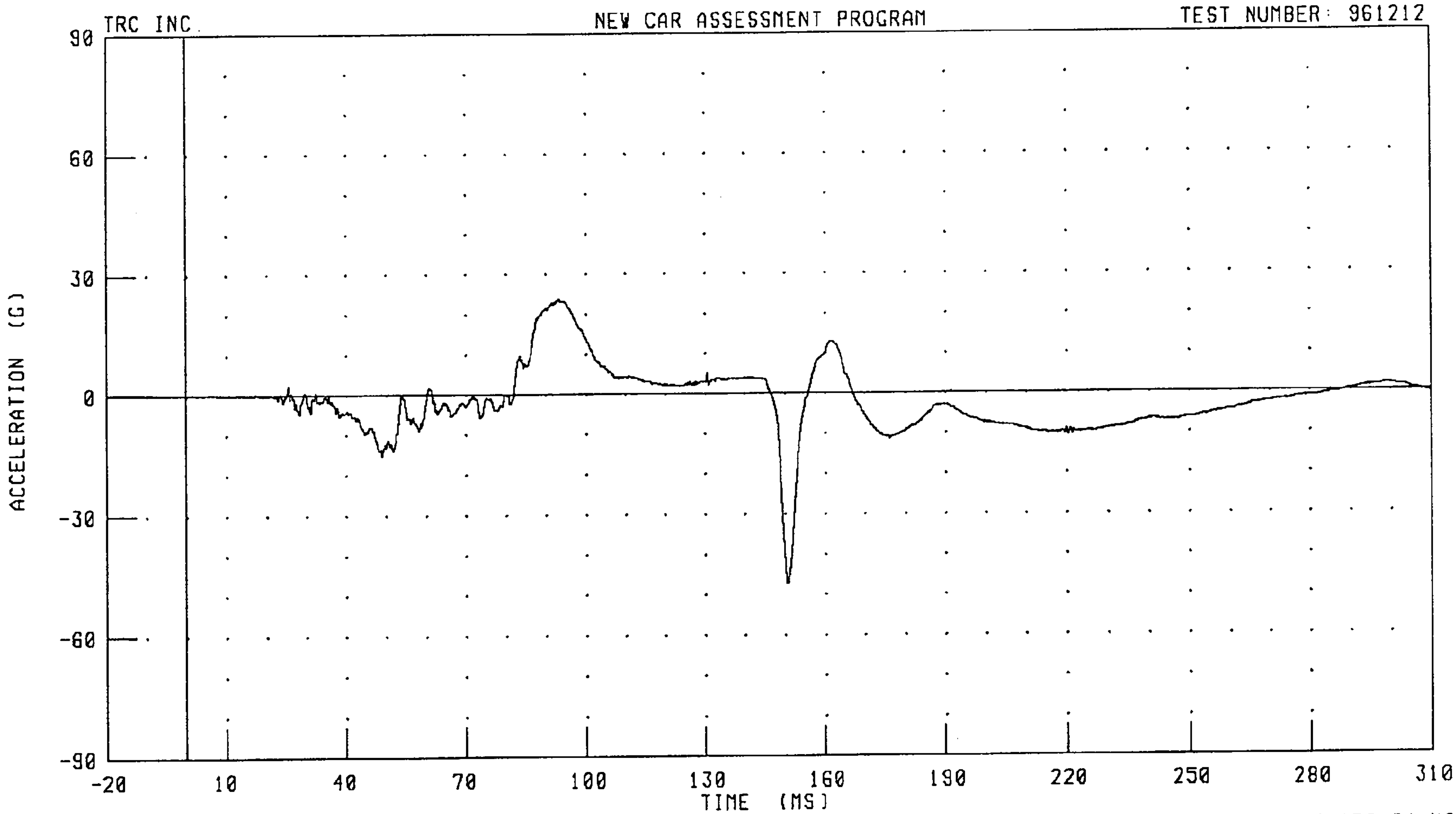
TEST NUMBER: 961212



CHANNEL: HEDXG1   FILTER: CH. CLASS 1000   PEAK DATA: 34.46 G @ 150.40 MS; -58.53 G @ 77.44 MS


1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD Y-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 961212
90
60
30
0
-30
-60
-90
ACCELERATION (G)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDYG1
FILTER: CH. CLASS 1000
PEAK DATA: 30.87 G @ 80.40 MS; -26.48 G @ 150.72 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD Z-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

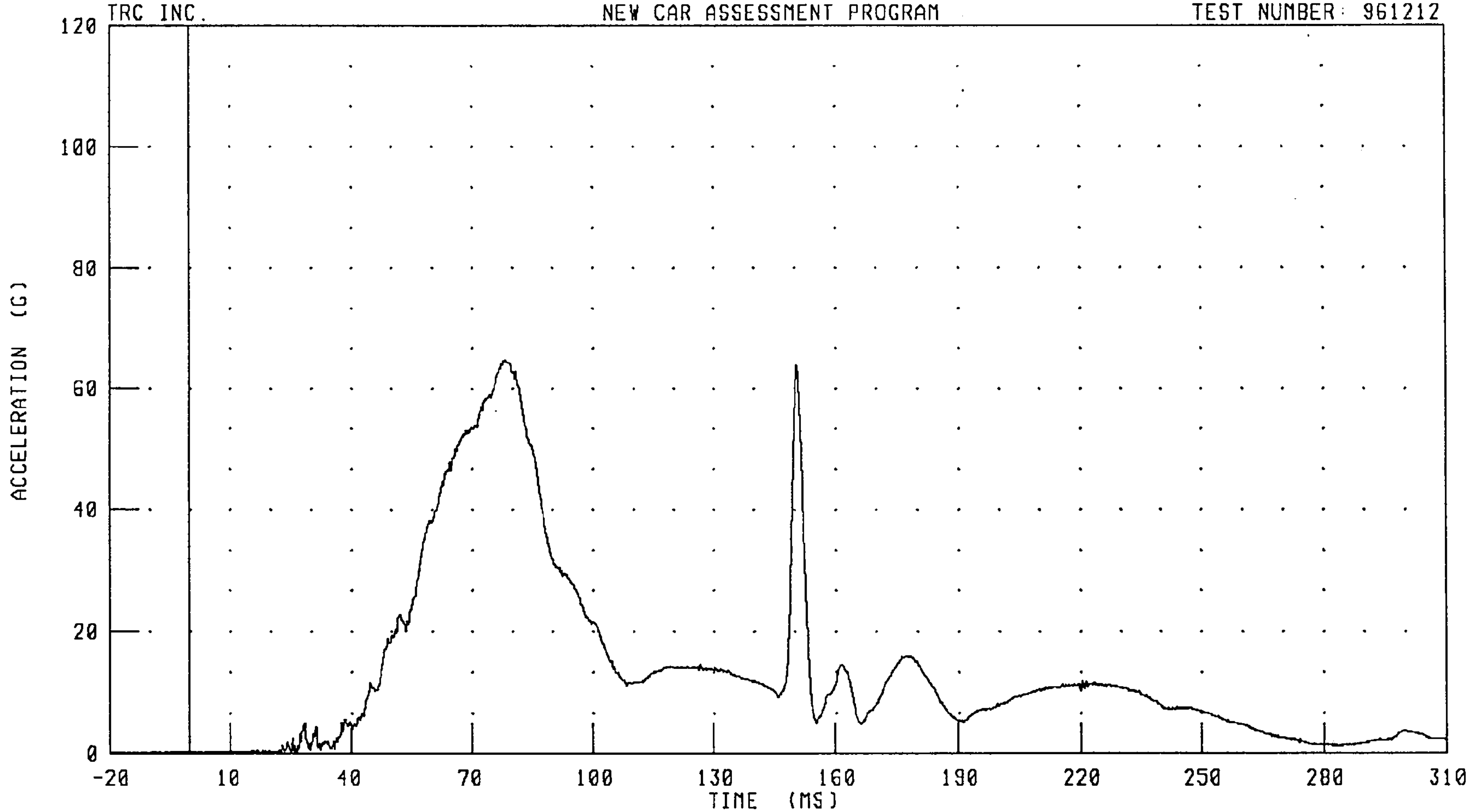


CHANNEL: HEDZG1   FILTER: CH. CLASS 1000   PEAK DATA: 23.84 G @ 93.36 MS; -47.25 G @ 150.64 MS

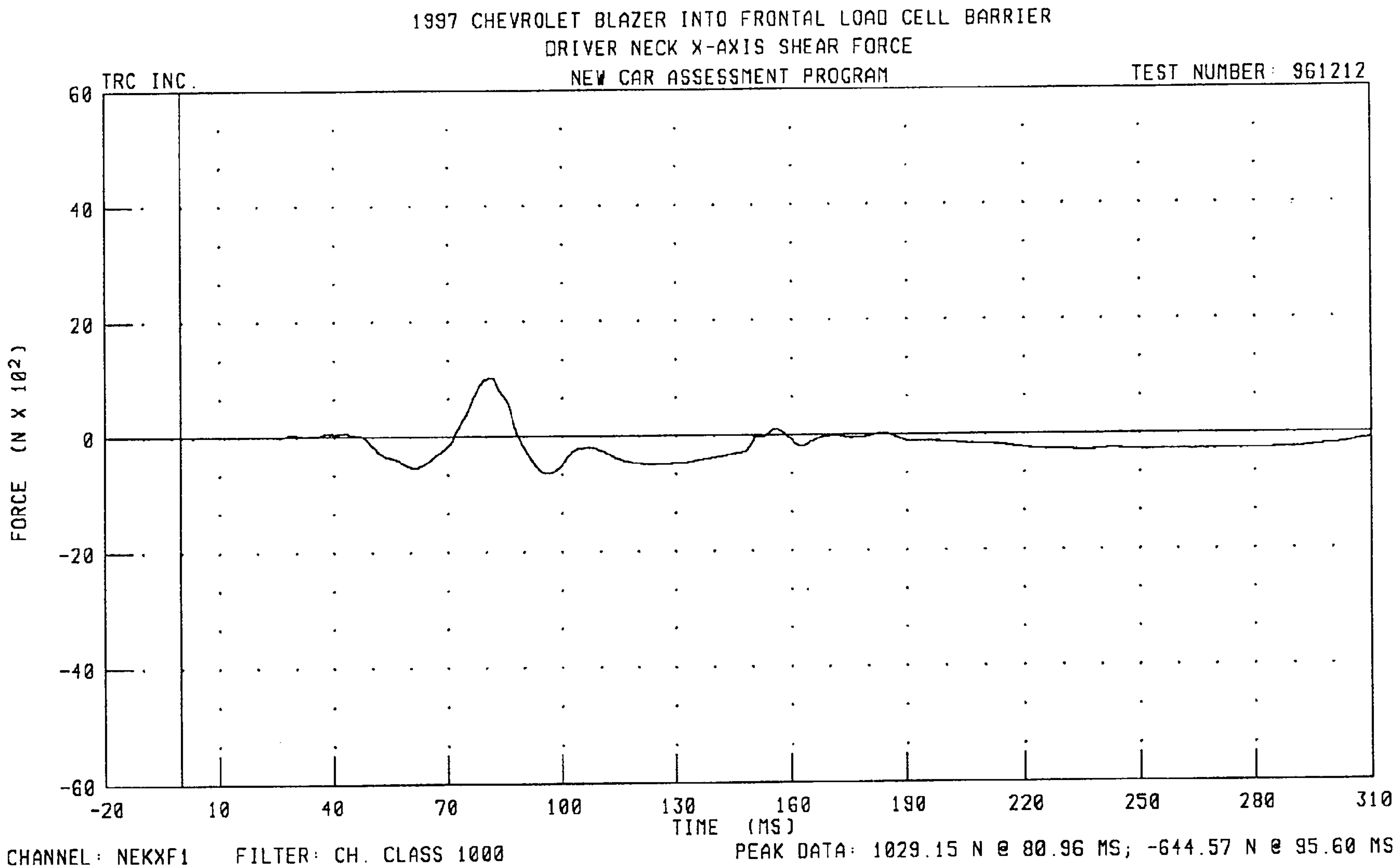
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD RESULTANT ACCELERATION
NEW CAR ASSESSMENT PROGRAM

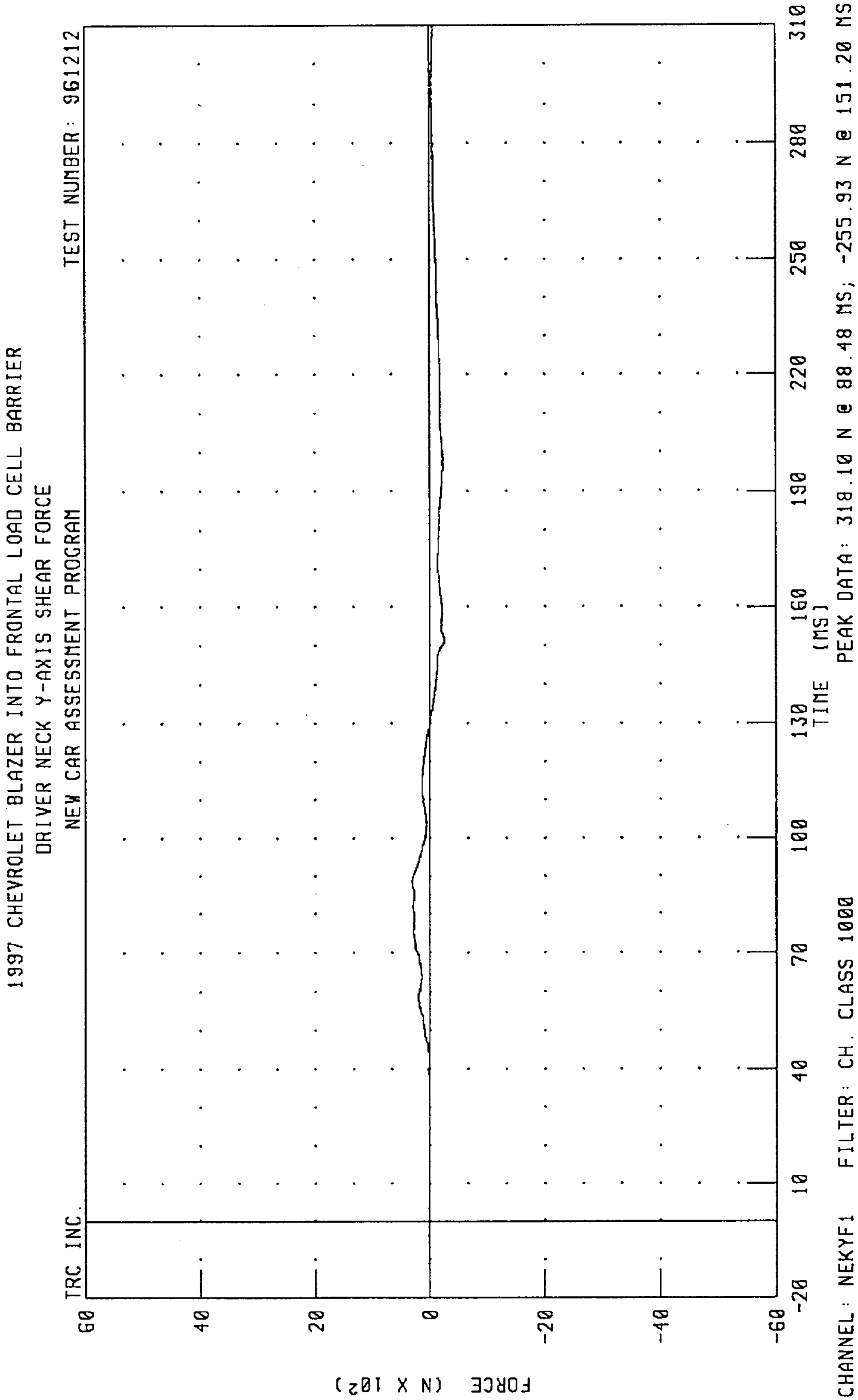
TRC INC.

TEST NUMBER: 961212



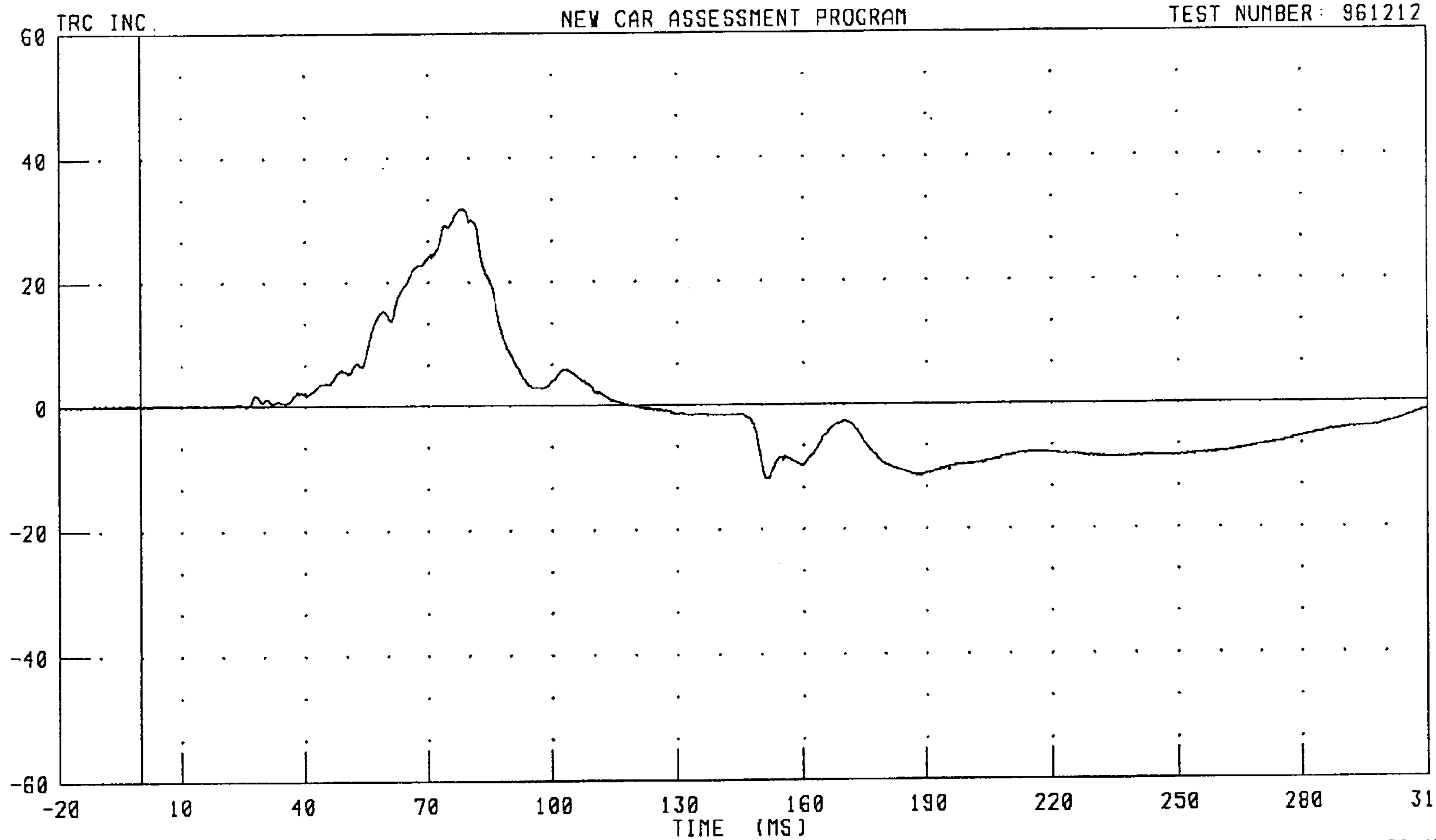
CHANNEL: HEDRG1 FILTER: CH. CLASS 1000 PEAK DATA: 64.77 G @ 78.40 MS; 0.08 G @ -20.00 MS


1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK X-AXIS SHEAR FORCE
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 961212
FORCE (N X 10²)
60
40
20
0
-20
-40
-60
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKXF1
FILTER: CH. CLASS 1000
PEAK DATA: 1029.15 N @ 80.96 MS; -644.57 N @ 95.60 MS



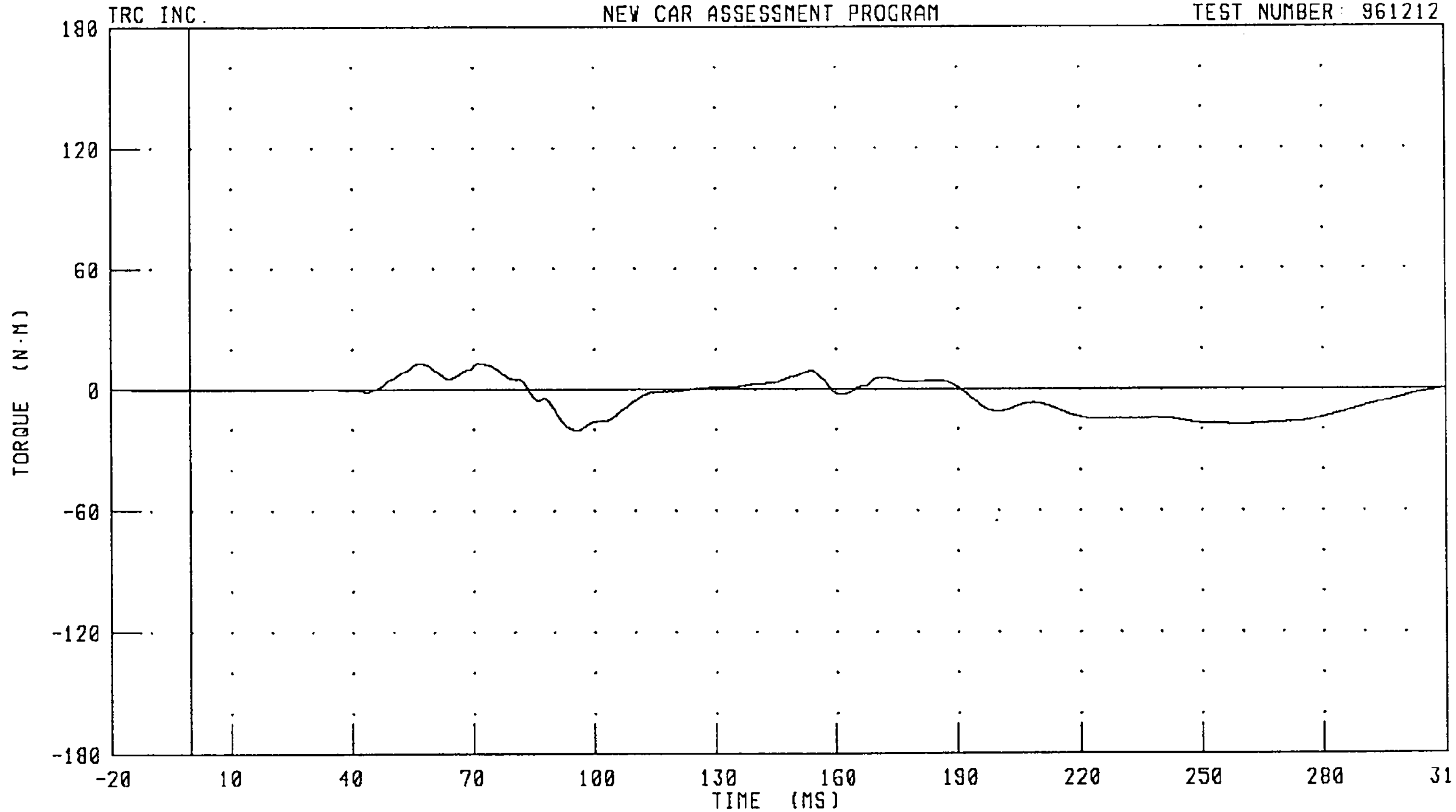
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK Y-AXIS SHEAR FORCE
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 961212
FORCE (N X 10²)
60
40
20
0
-20
-40
-60
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKYF1
FILTER: CH. CLASS 1000
PEAK DATA: 318.10 N @ 88.48 MS; -255.93 N @ 151.20 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK Z-AXIS AXIAL FORCE
NEW CAR ASSESSMENT PROGRAM



CHANNEL: NEKZF1   FILTER: CH. CLASS 1000   PEAK DATA: 3185.87 N @ 78.56 MS; -1189.04 N @ 151.68 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK MOMENT ABOUT X AXIS
NEW CAR ASSESSMENT PROGRAM



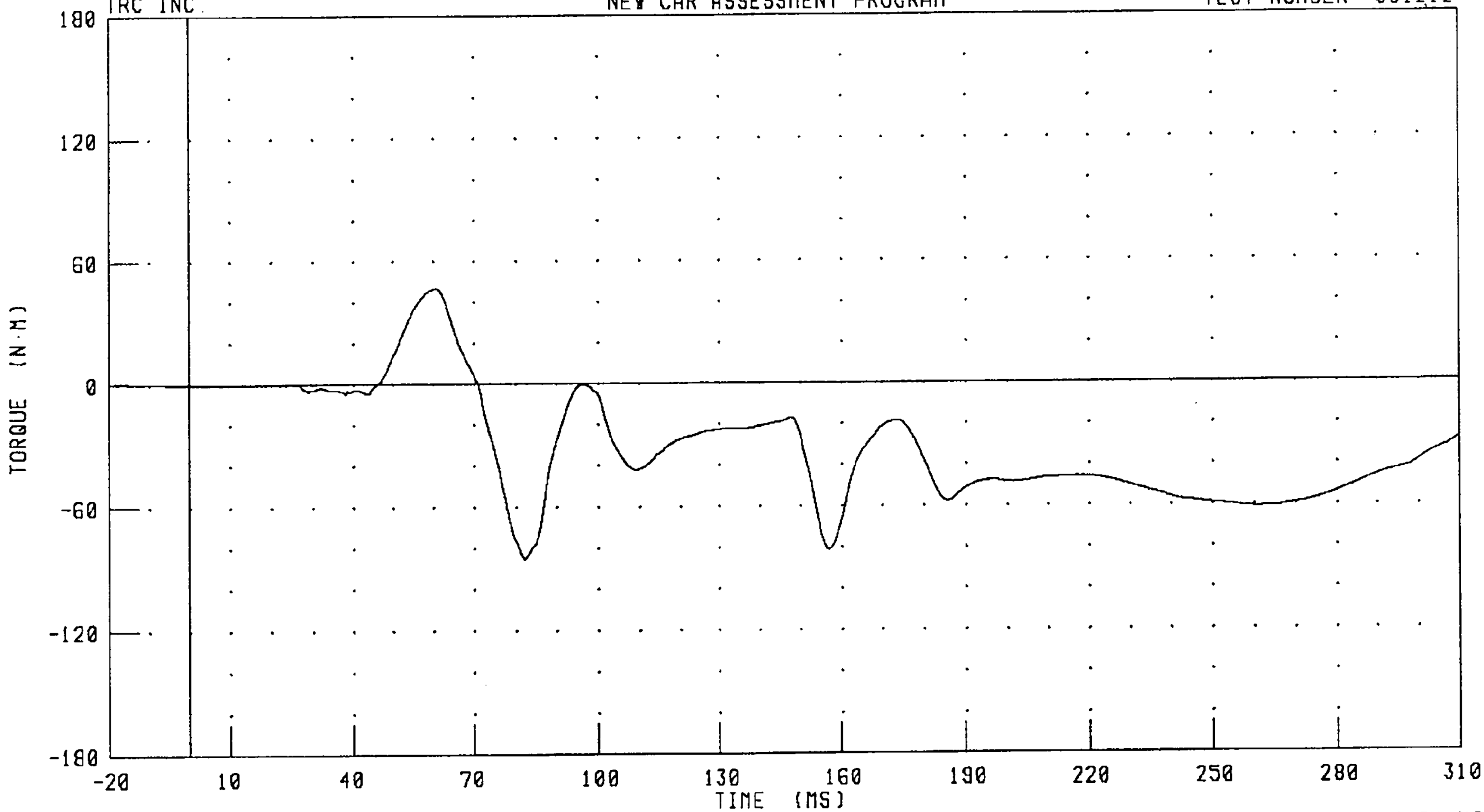
CHANNEL: NEKXM1 FILTER: CH. CLASS 600 PEAK DATA: 13.10 N·M @ 71.36 MS; -20.27 N·M @ 95.44 MS

961212

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK MOMENT ABOUT Y AXIS
NEW CAR ASSESSMENT PROGRAM

TRC INC.

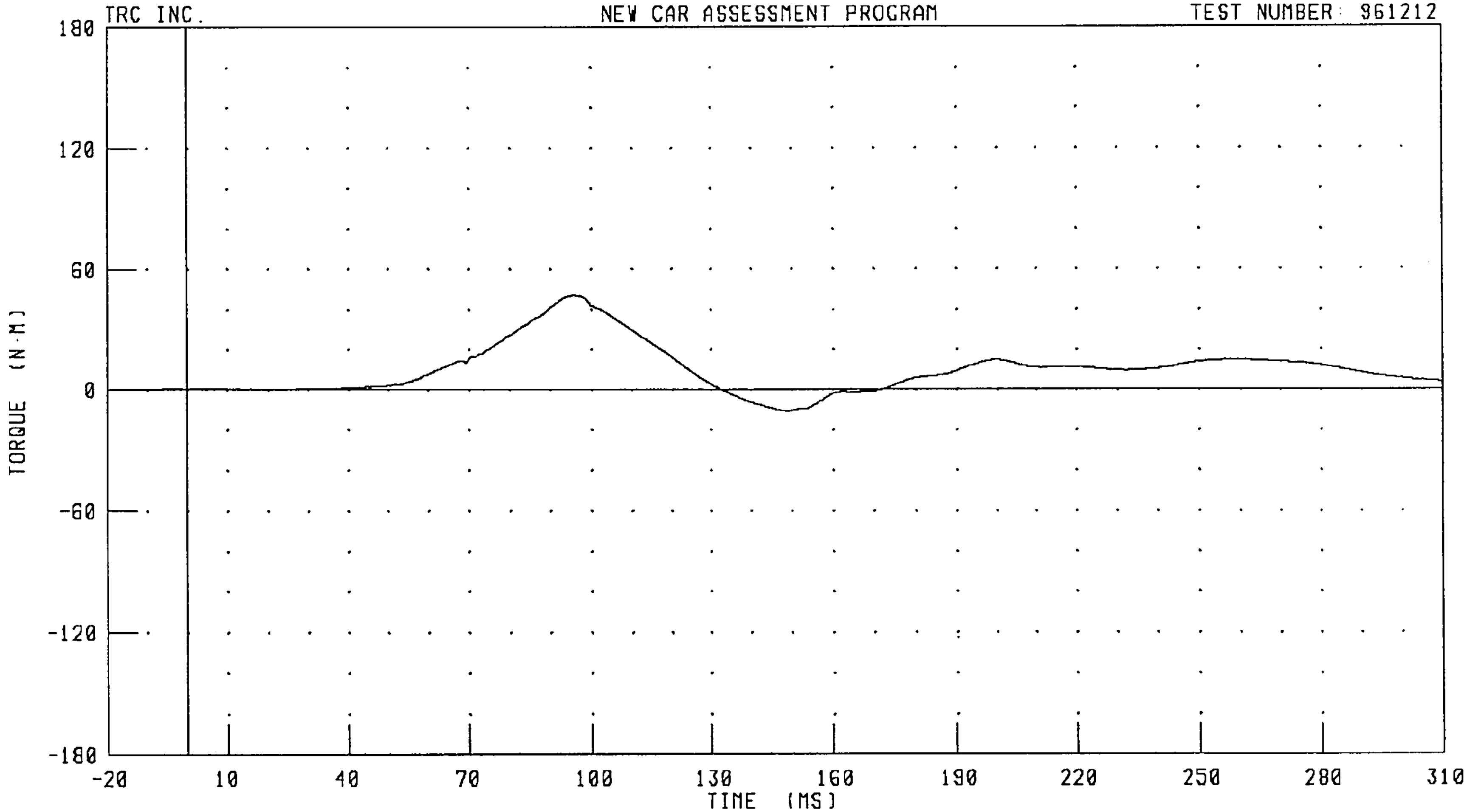
TEST NUMBER: 961212



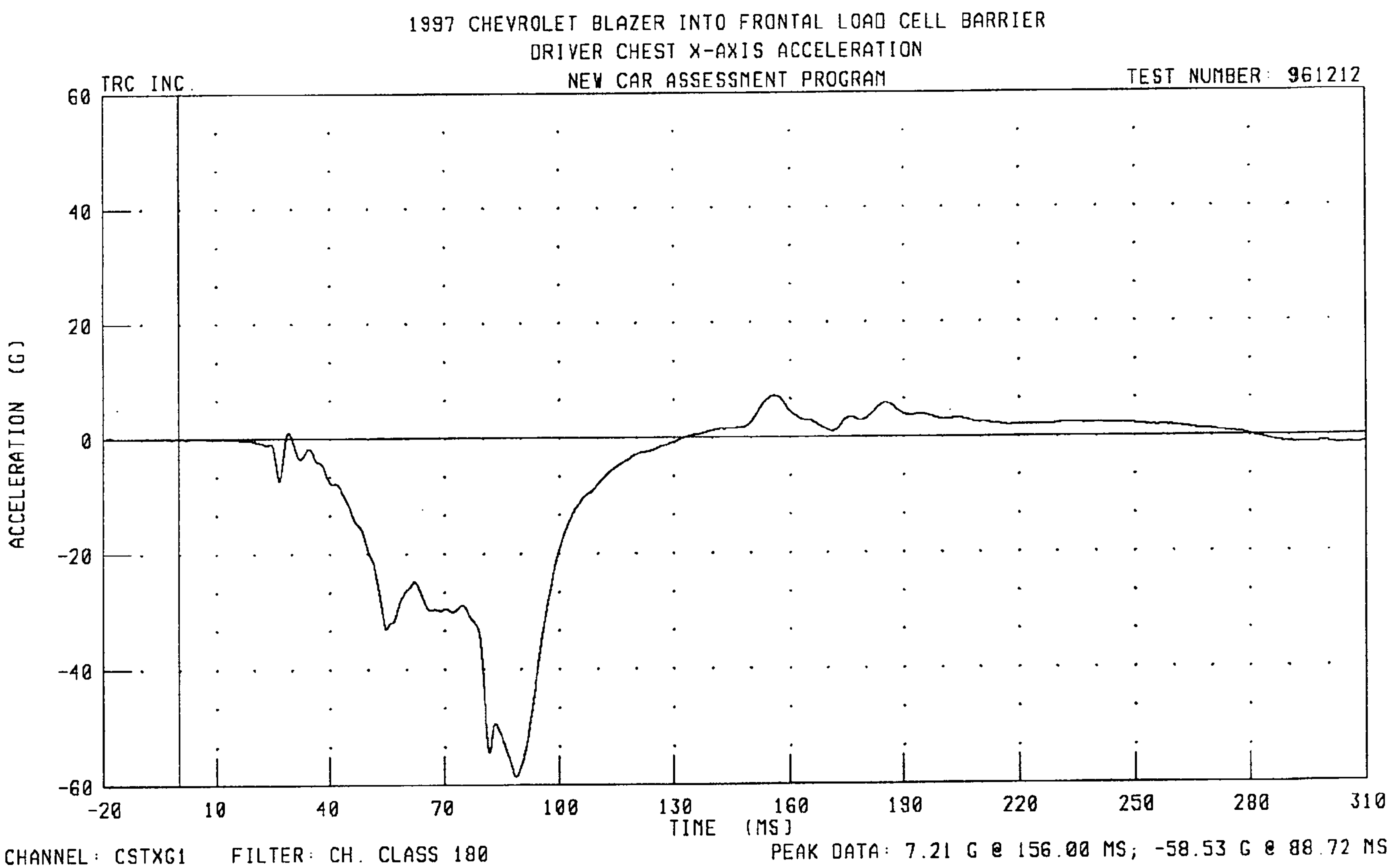
CHANNEL: NEKYM1 FILTER: CH. CLASS 600

PEAK DATA: 46.90 N·M @ 60.72 MS; -85.36 N·M @ 82.24 MS

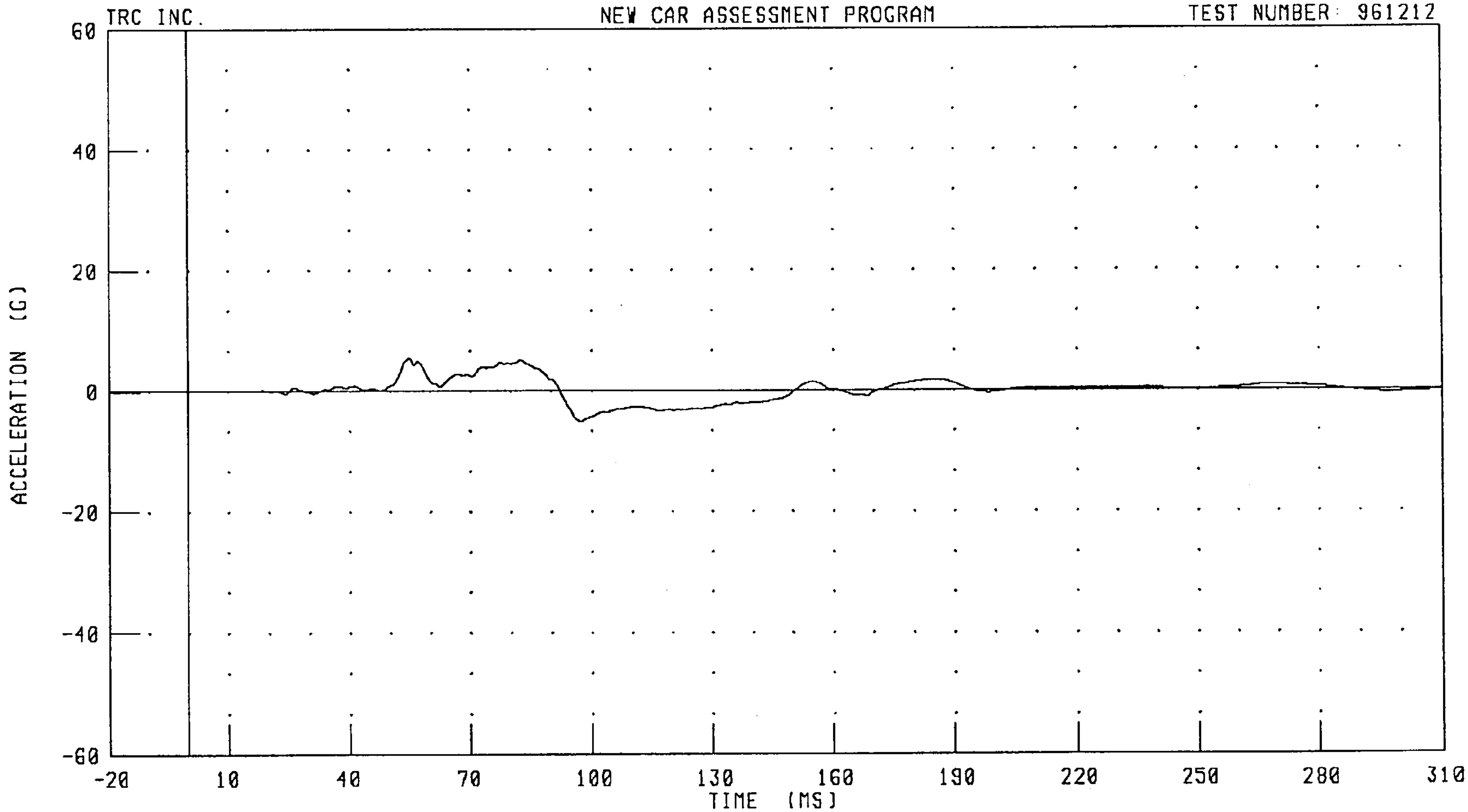
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER NECK MOMENT ABOUT Z AXIS
NEW CAR ASSESSMENT PROGRAM



CHANNEL: NEKZM1   FILTER: CH. CLASS 600   PEAK DATA: 47.09 N·M @ 95.84 MS; -10.89 N·M @ 148.48 MS


1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 961212
ACCELERATION (G)
60
40
20
0
-20
-40
-60
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTXG1
FILTER: CH. CLASS 180
PEAK DATA: 7.21 G @ 156.00 MS; -58.53 G @ 88.72 MS

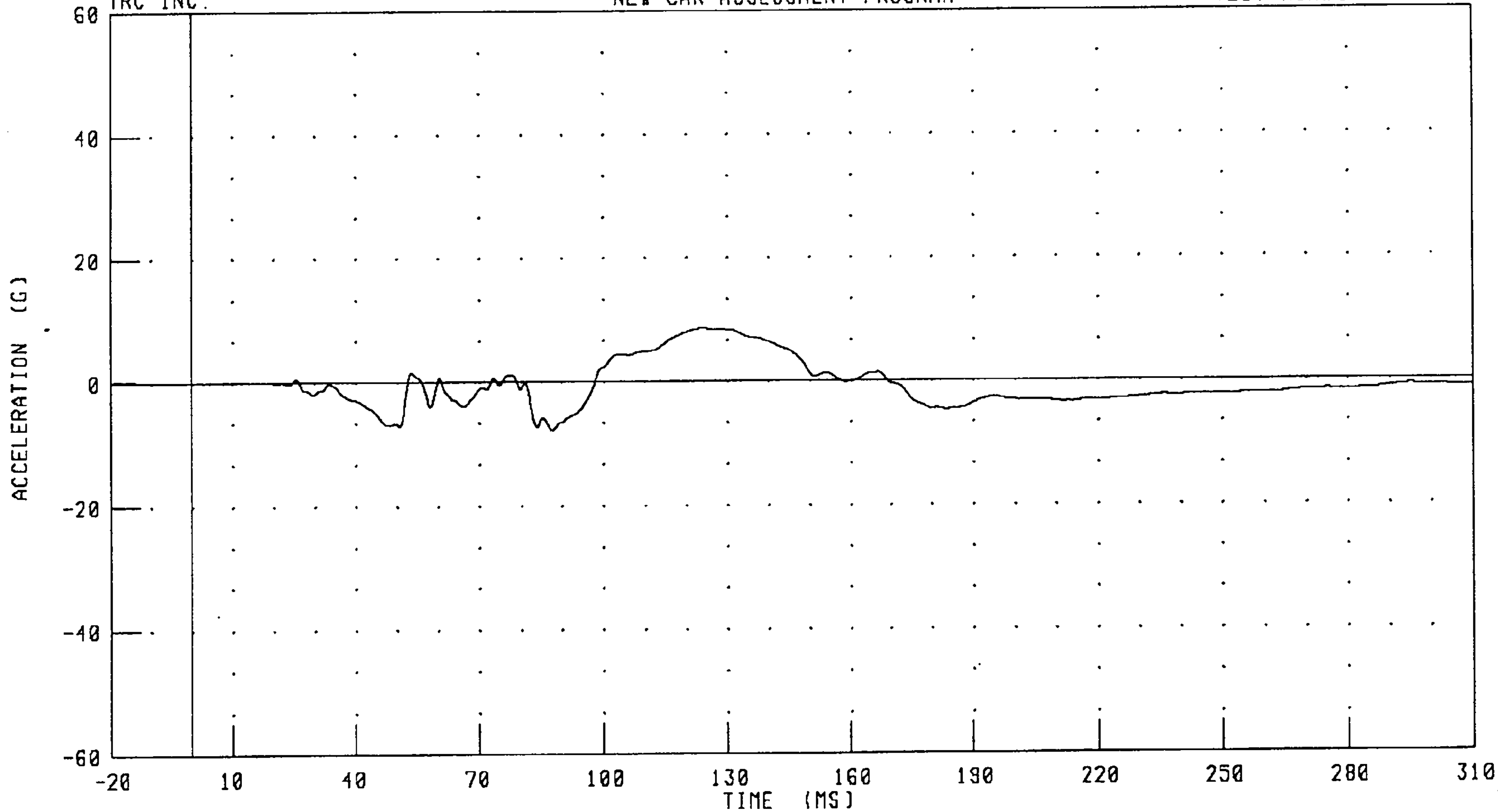
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST Y-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM



CHANNEL: CSTYG1 FILTER: CH. CLASS 180 PEAK DATA: 5.44 G @ 54.80 MS; -5.04 G @ 97.44 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST Z-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

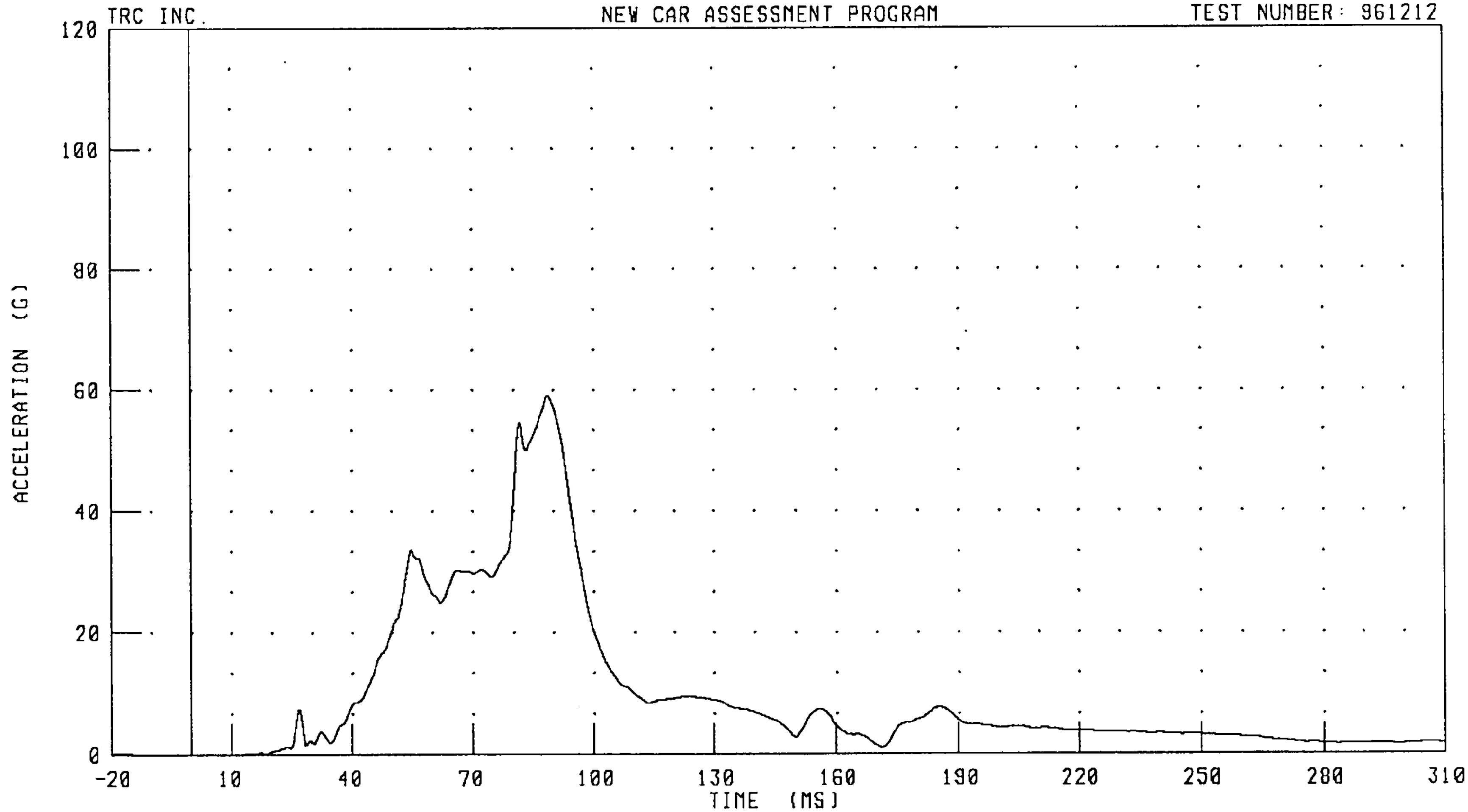
TEST NUMBER: 961212



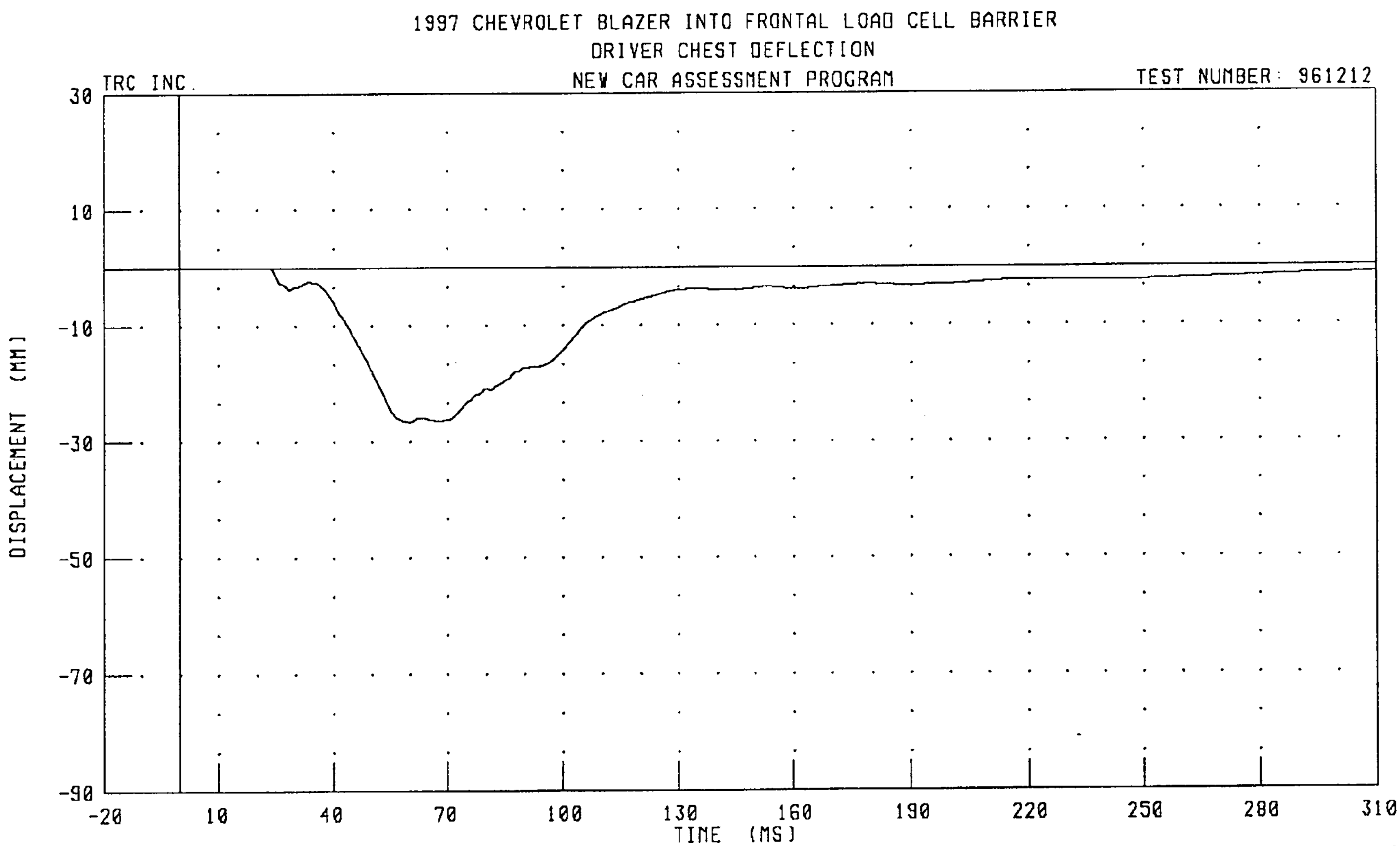
CHANNEL: CSTZG1   FILTER: CH. CLASS 180

PEAK DATA: 8.63 G @ 124.40 MS; -7.80 G @ 87.68 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST RESULTANT ACCELERATION
NEW CAR ASSESSMENT PROGRAM

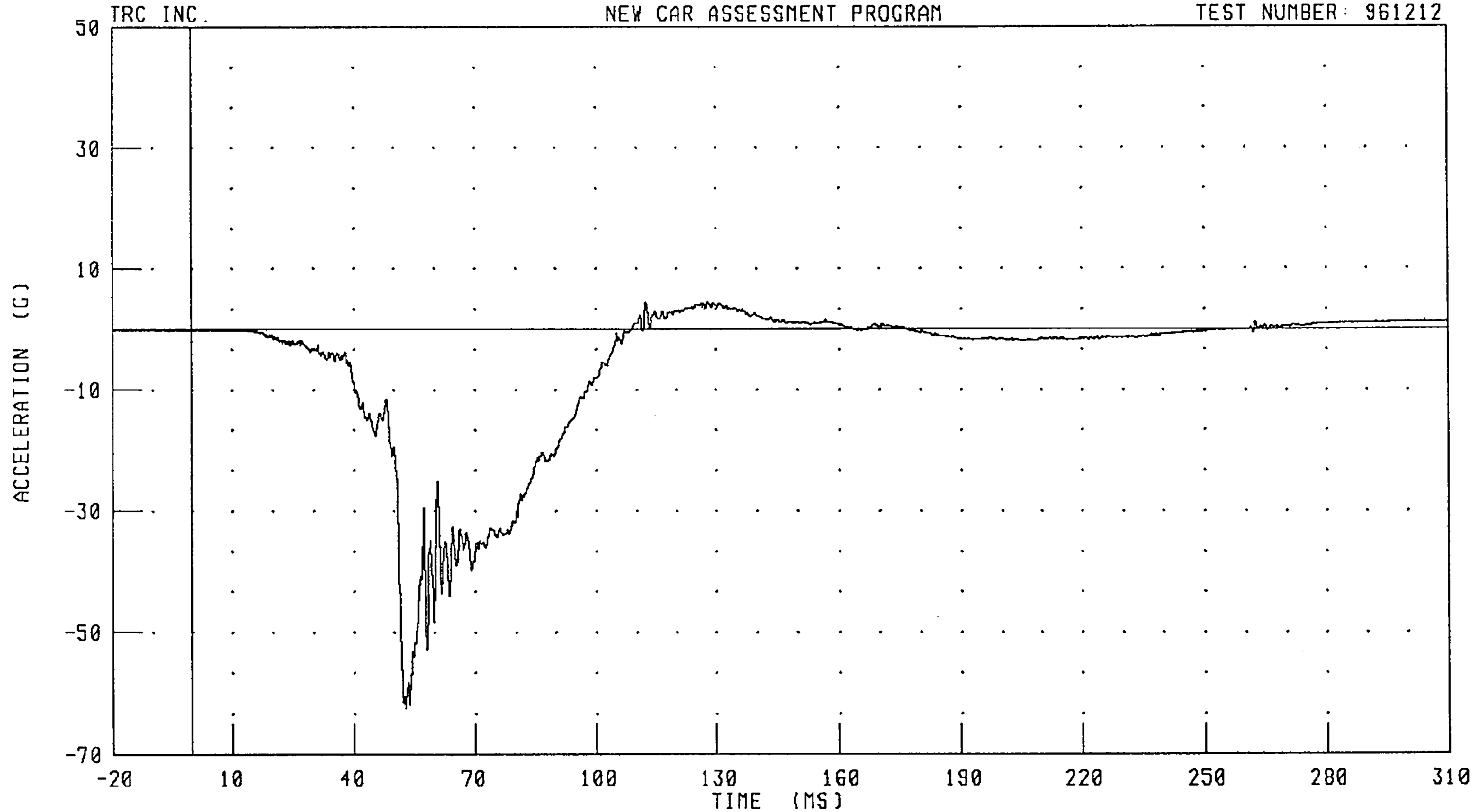


CHANNEL: CSTRG1 FILTER: CH. CLASS 180 PEAK DATA: 59.03 G @ 88.64 MS; 0.01 G @ -20.00 MS



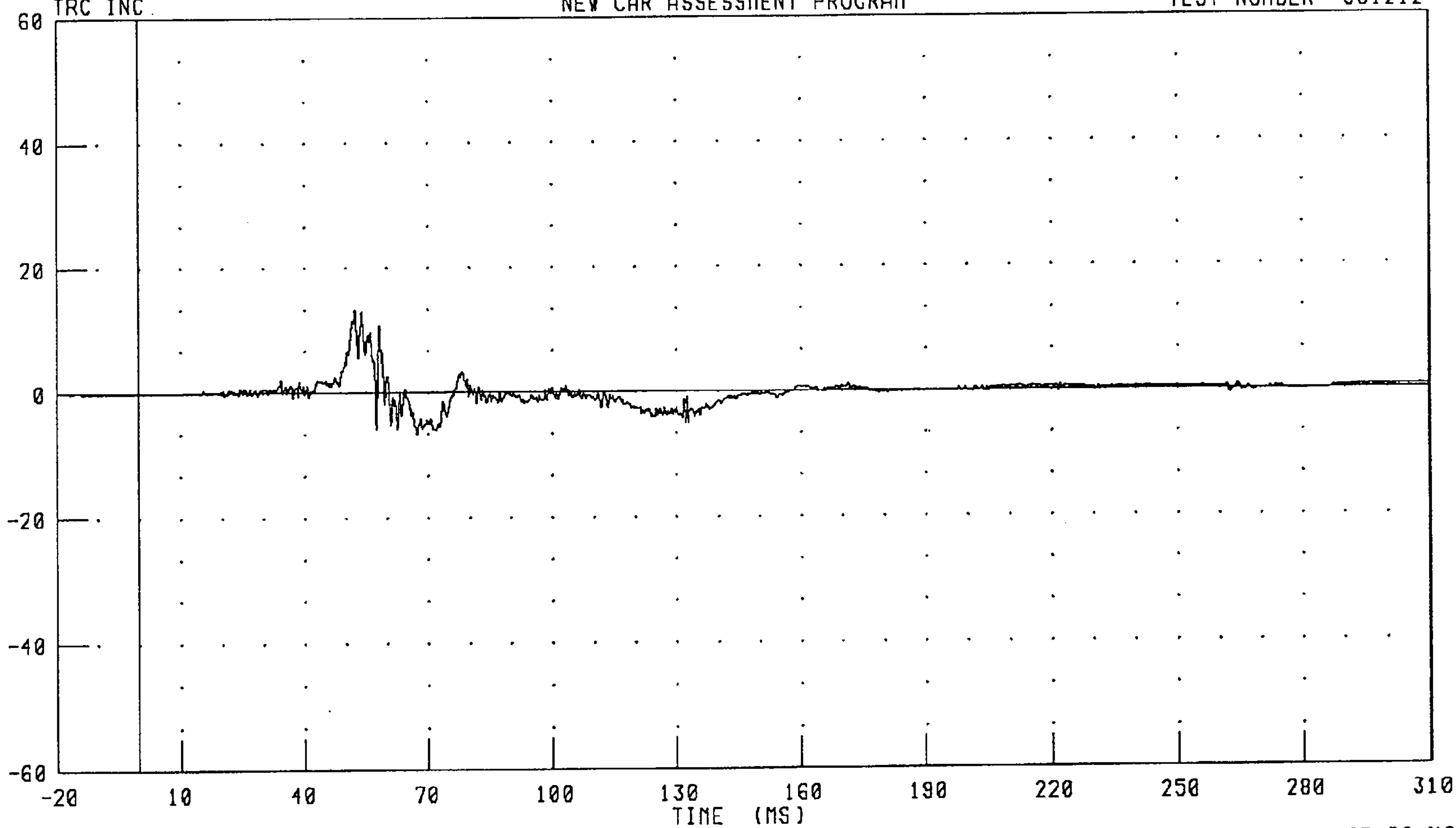
CHANNEL: CSTXD1   FILTER: CH. CLASS 180   PEAK DATA: 0.02 MM @ 22.80 MS; -26.69 MM @ 59.92 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER PELVIS X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM



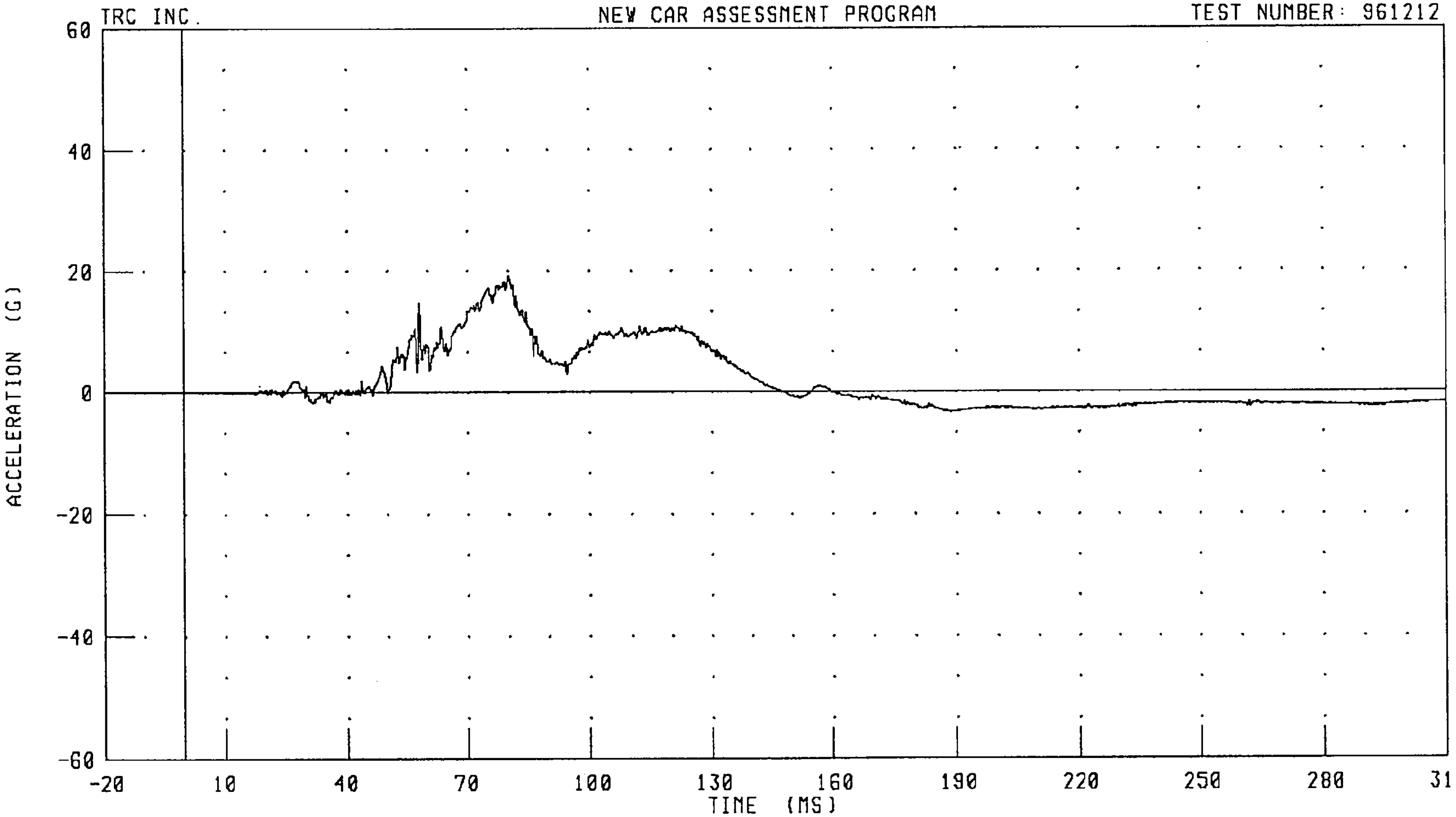
CHANNEL: PEVXG1 FILTER: CH. CLASS 1000 PEAK DATA: 4.61 G @ 127.84 MS; -62.44 G @ 52.88 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER PELVIS Y-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM



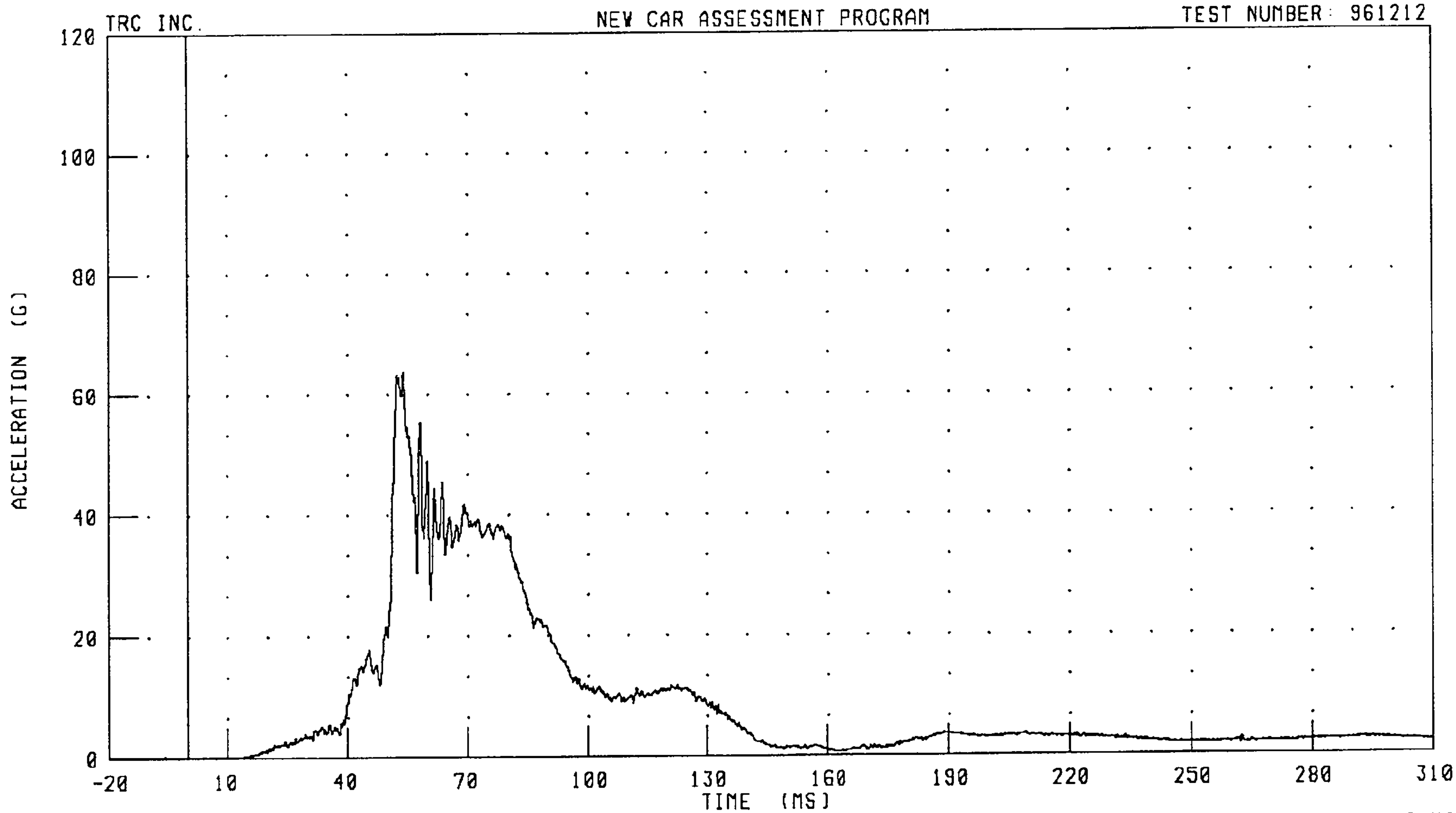
CHANNEL: PEVYG1 FILTER: CH. CLASS 1000 PEAK DATA: 13.27 G @ 52.24 MS; -6.82 G @ 67.36 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER PELVIS Z-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM



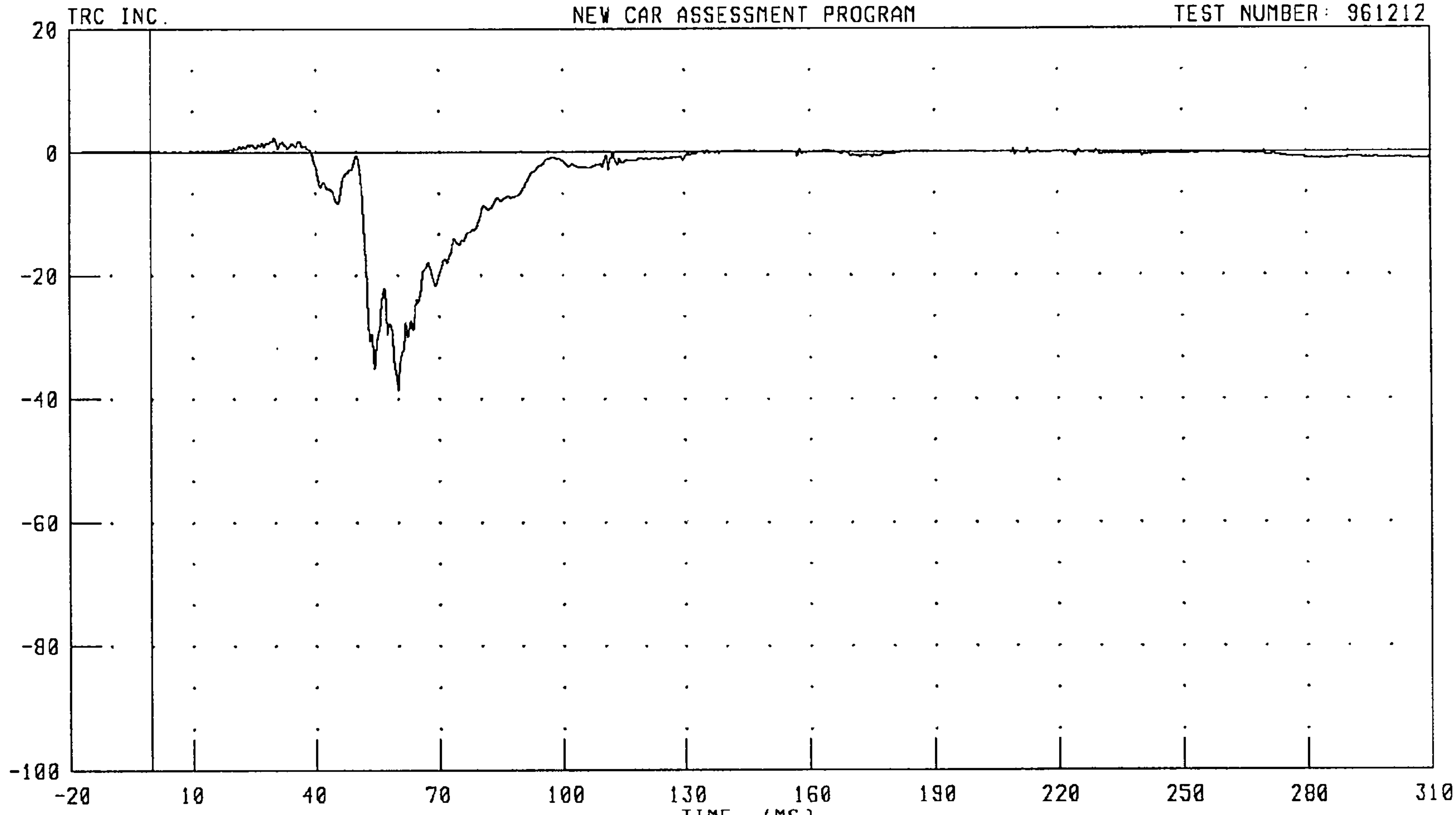
CHANNEL: PEVZG1   FILTER: CH. CLASS 1000   PEAK DATA: 19.23 G @ 80.24 MS; -3.43 G @ 188.72 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER PELVIS RESULTANT ACCELERATION
NEW CAR ASSESSMENT PROGRAM



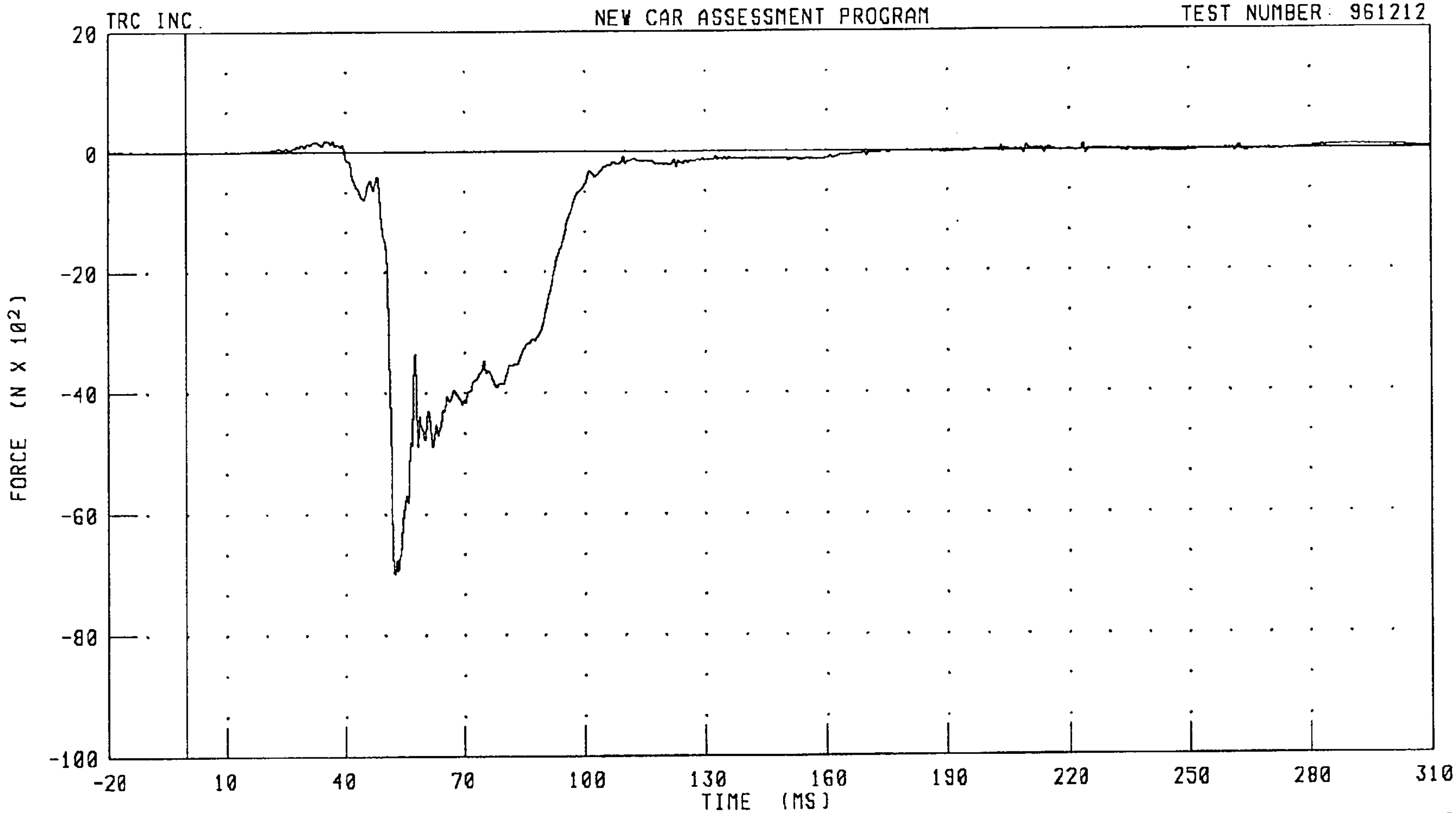
CHANNEL: PEVRG1   FILTER: CH. CLASS 1000   PEAK DATA: 63.71 G @ 53.92 MS; 0.14 G @ -20.00 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT FEMUR FORCE
NEW CAR ASSESSMENT PROGRAM



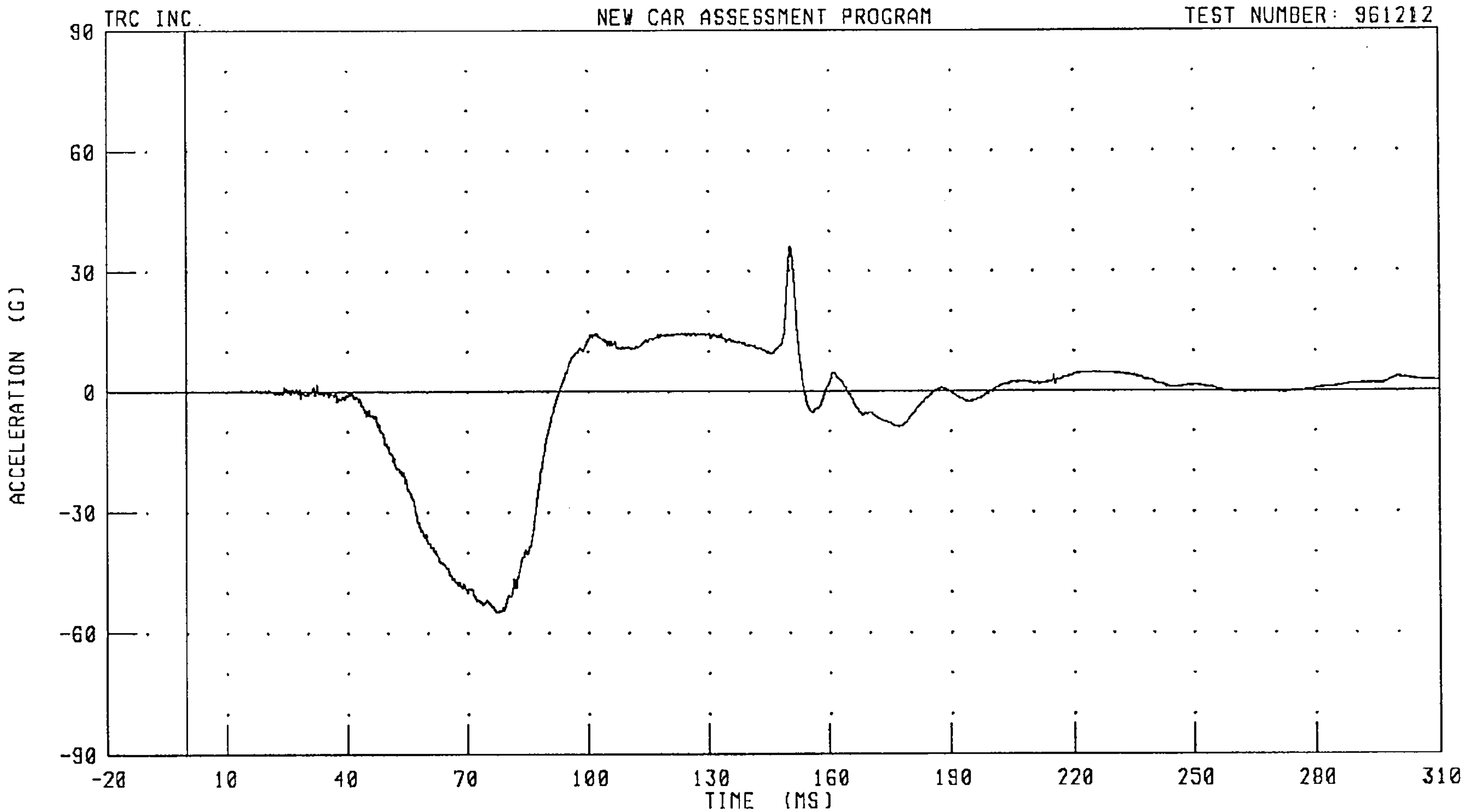
CHANNEL: LFMF1 FILTER: CH. CLASS 600 PEAK DATA: 234.19 N @ 30.08 MS; -3871.35 N @ 60.16 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT FEMUR FORCE
NEW CAR ASSESSMENT PROGRAM

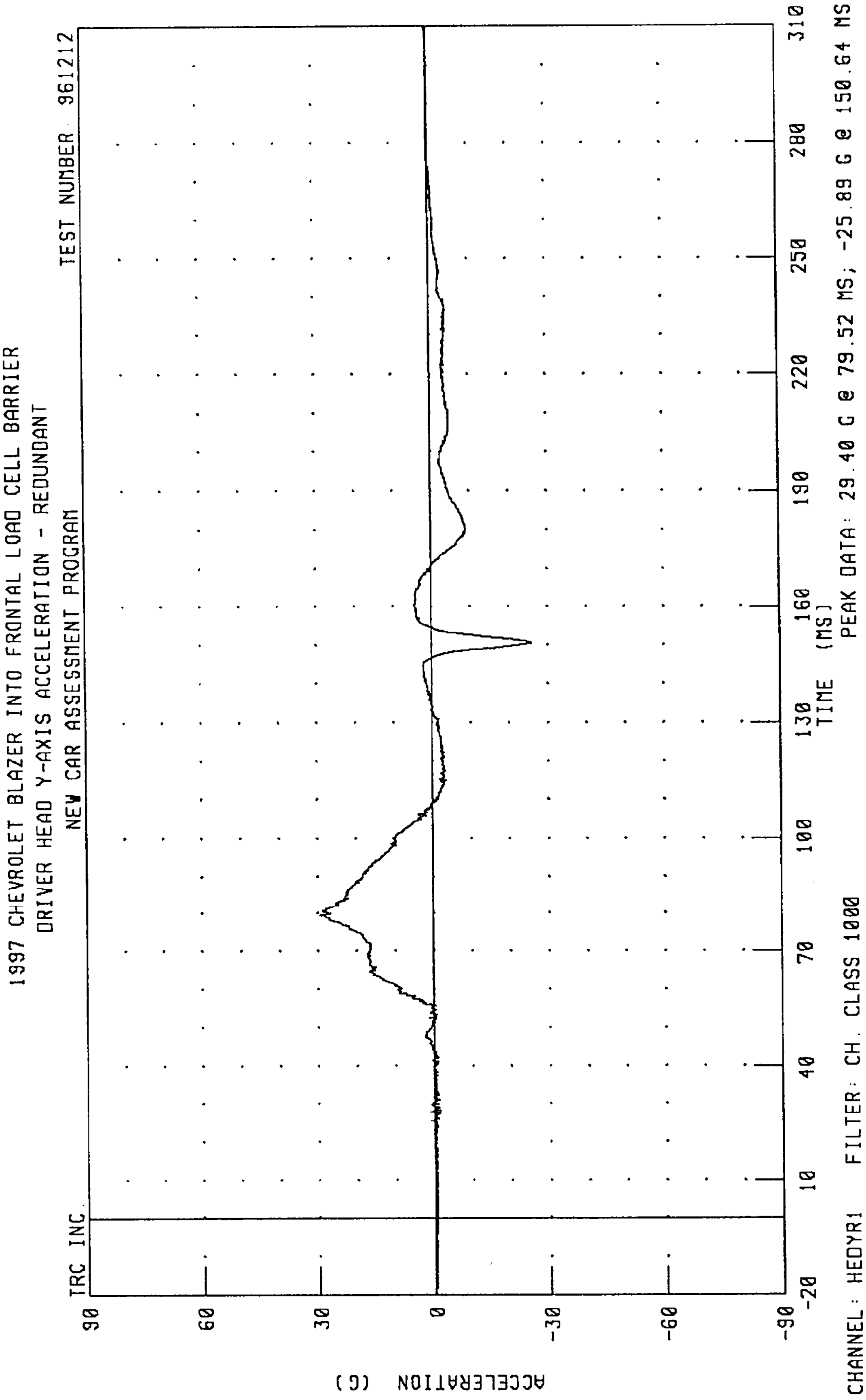


CHANNEL: RFMFI FILTER: CH. CLASS 600 PEAK DATA: 177.92 N @ 35.12 MS; -7004.20 N @ 52.40 MS

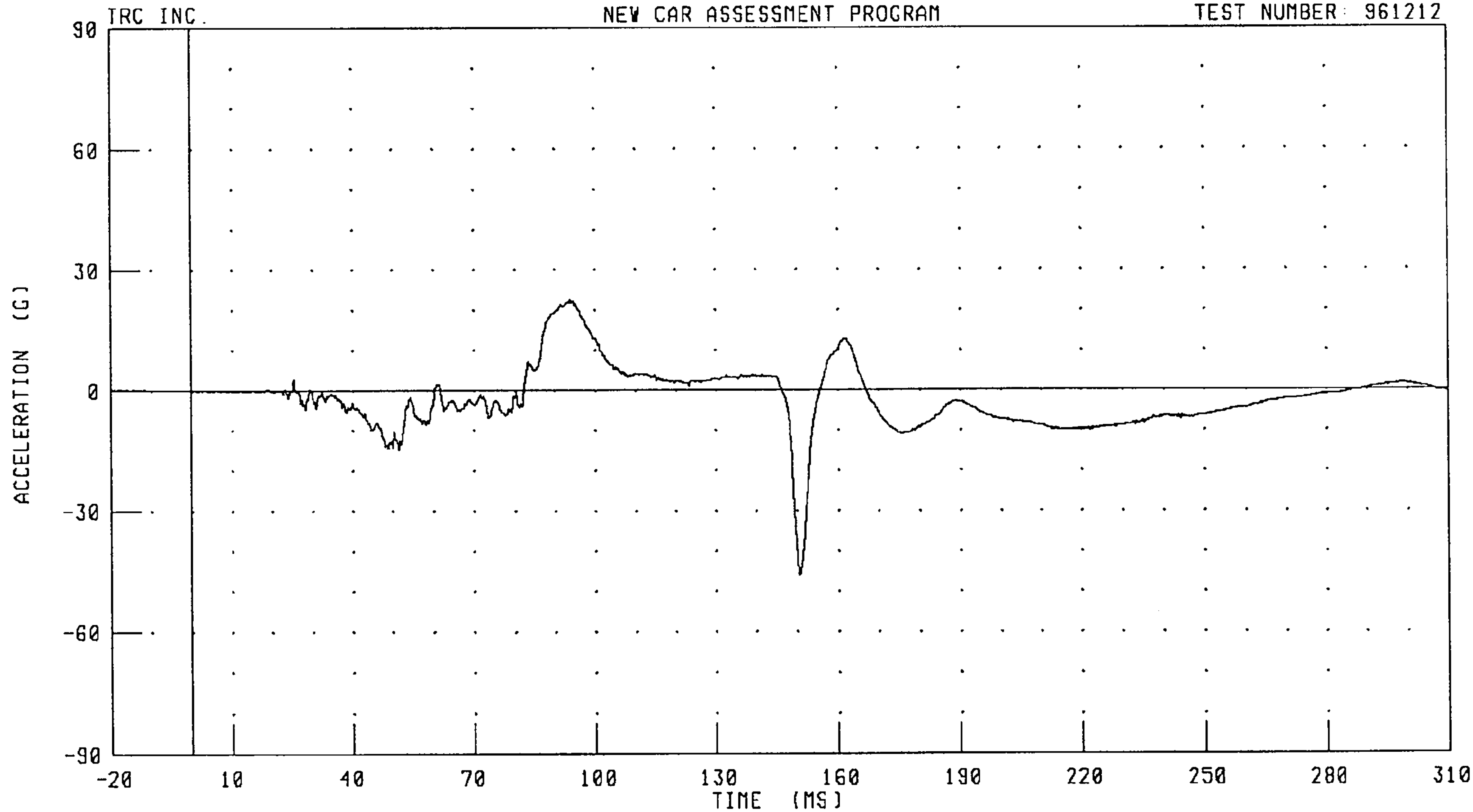
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD X-AXIS ACCELERATION - REDUNDANT
NEW CAR ASSESSMENT PROGRAM



CHANNEL: HEDXR1 FILTER: CH. CLASS 1000 PEAK DATA: 36.20 G @ 150.40 MS; -54.85 G @ 77.20 MS


1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD Y-AXIS ACCELERATION - REDUNDANT
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER 961212
TRC INC.
ACCELERATION (G)
90
60
30
0
-30
-60
-90
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDYR1 FILTER: CH. CLASS 1000
PEAK DATA: 29.40 G @ 79.52 MS; -25.89 G @ 150.64 MS

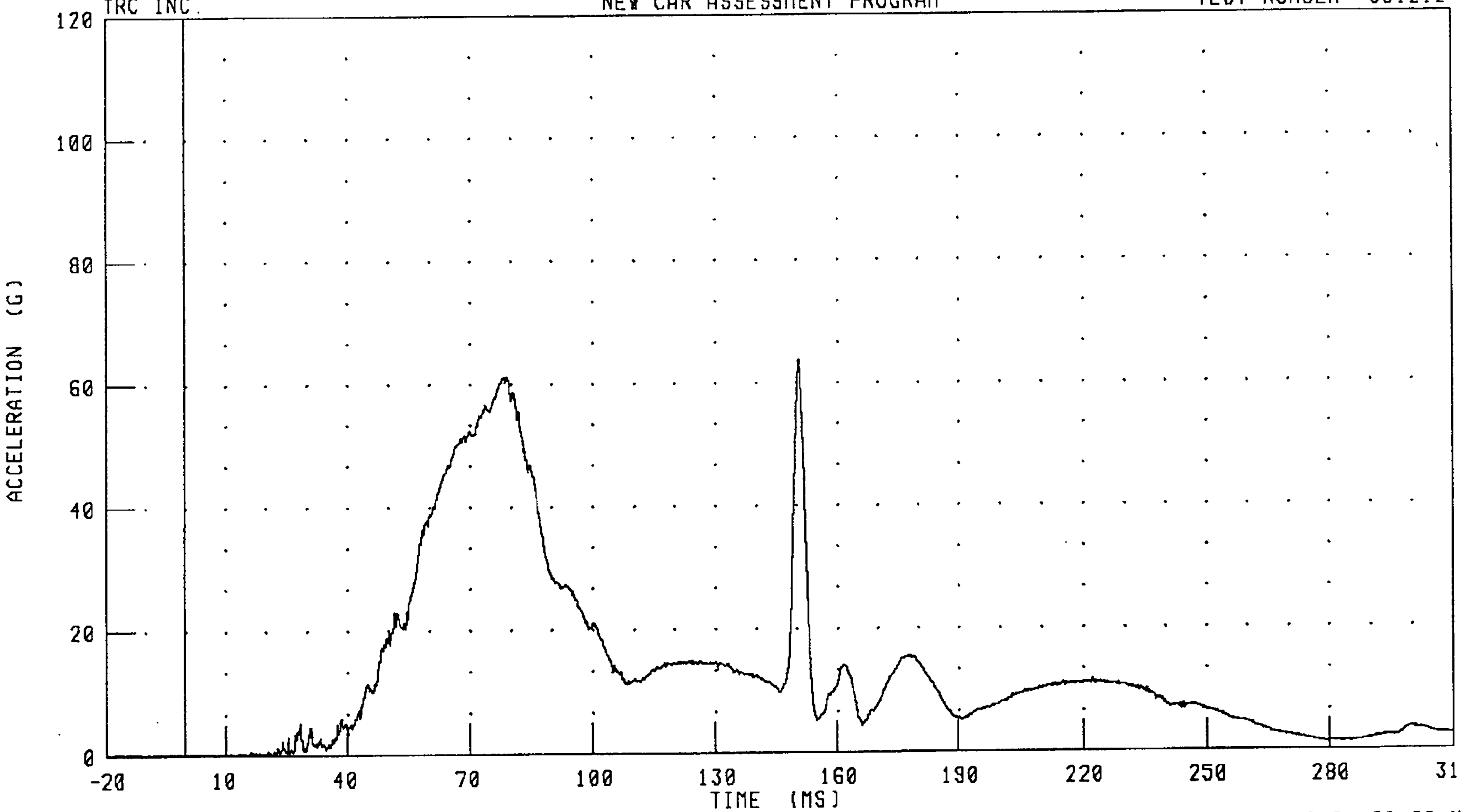
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD Z-AXIS ACCELERATION - REDUNDANT
NEW CAR ASSESSMENT PROGRAM



CHANNEL: HEDZR1 FILTER: CH. CLASS 1000 PEAK DATA: 22.51 G @ 93.92 MS; -46.02 G @ 150.64 MS

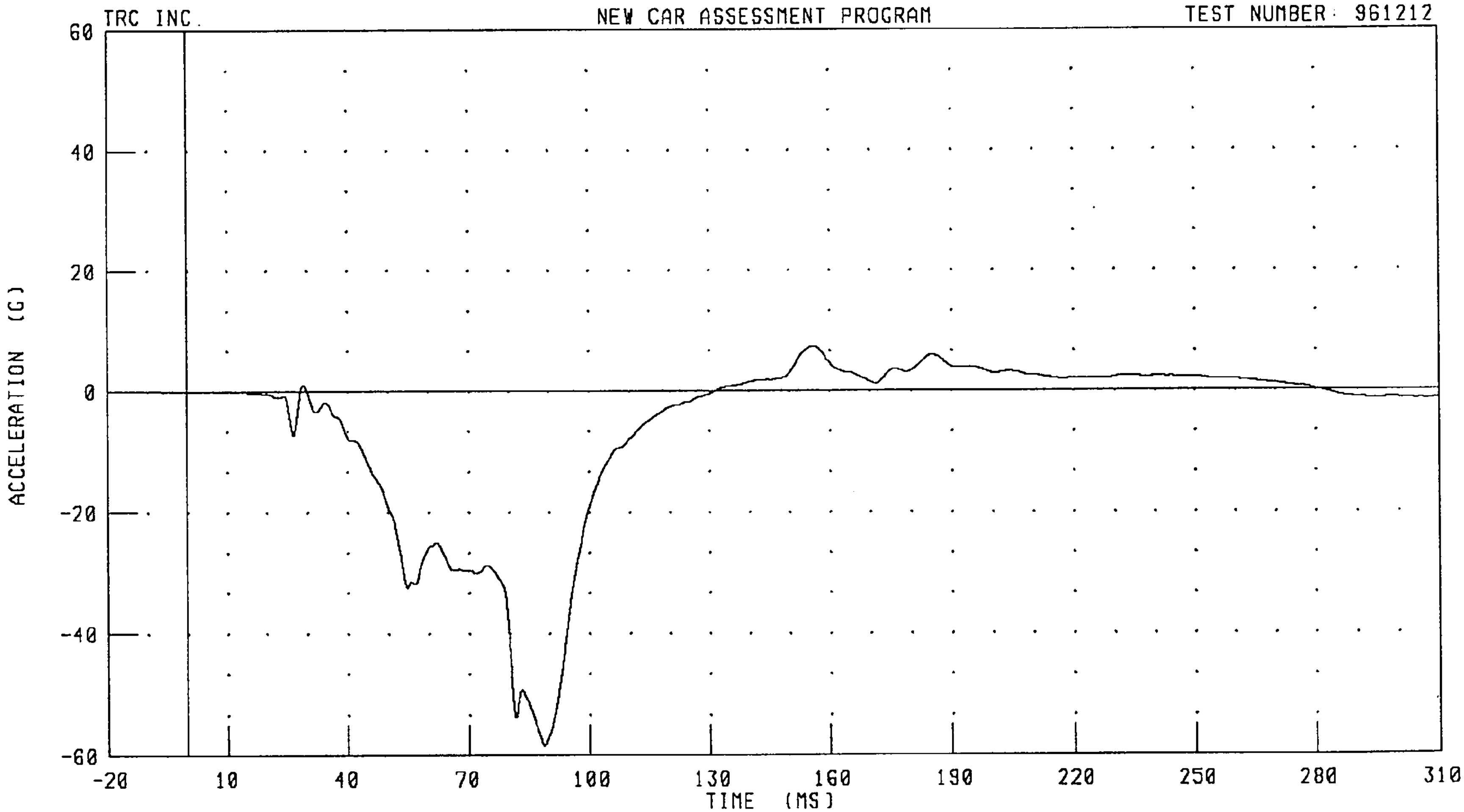
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER HEAD RESULTANT ACCELERATION - REDUNDANT
NEW CAR ASSESSMENT PROGRAM

TRC INC. TEST NUMBER: 961212



CHANNEL: HEDRR1 FILTER: CH. CLASS 1000 PEAK DATA: 63.69 G @ 150.56 MS; 0.09 G @ -20.00 MS

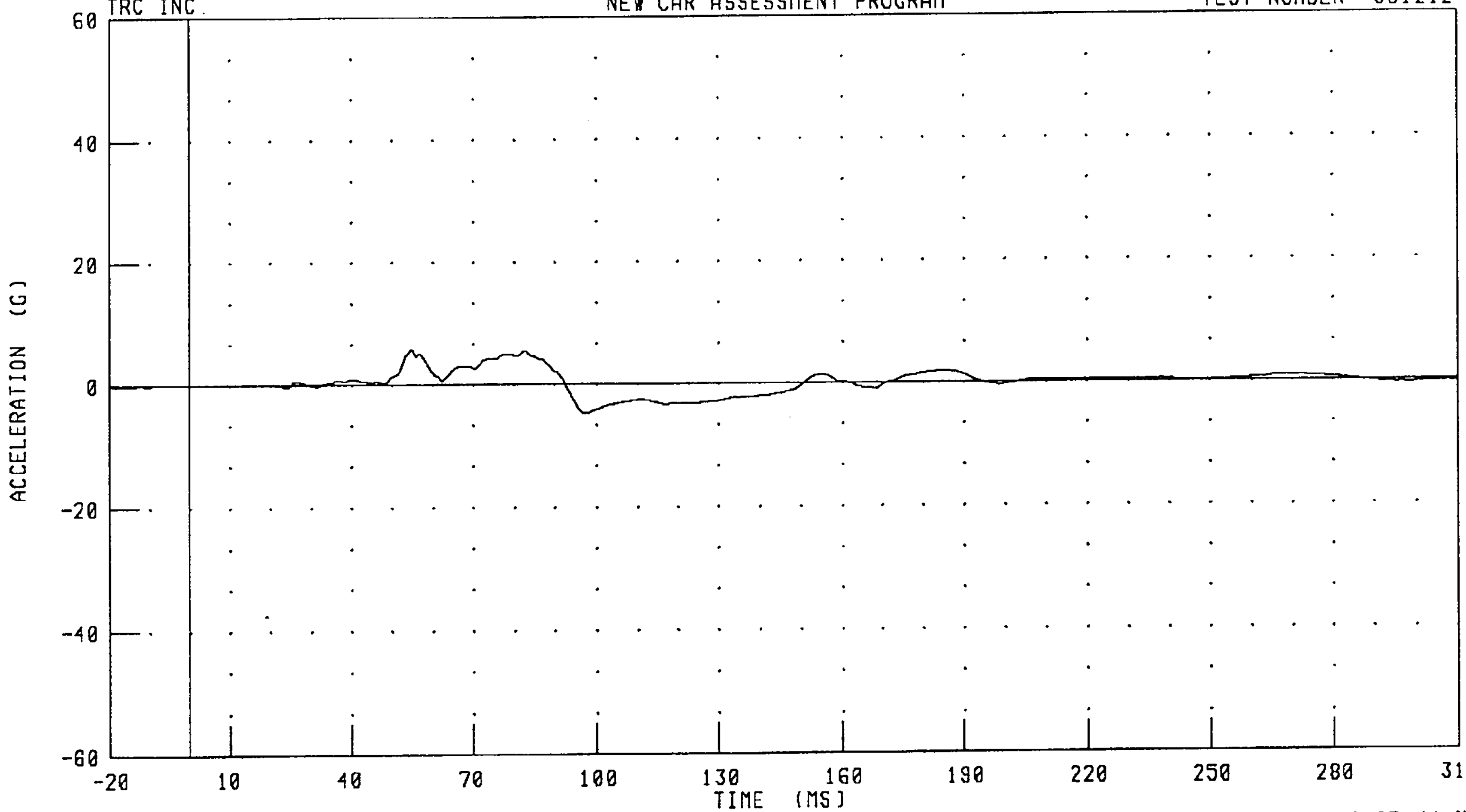
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST X-AXIS ACCELERATION - REDUNDANT
NEW CAR ASSESSMENT PROGRAM



CHANNEL: CSTXR1 FILTER: CH. CLASS 180 PEAK DATA: 7.37 G @ 156.00 MS; -58.33 G @ 88.64 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST Y-AXIS ACCELERATION - REDUNDANT
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961212



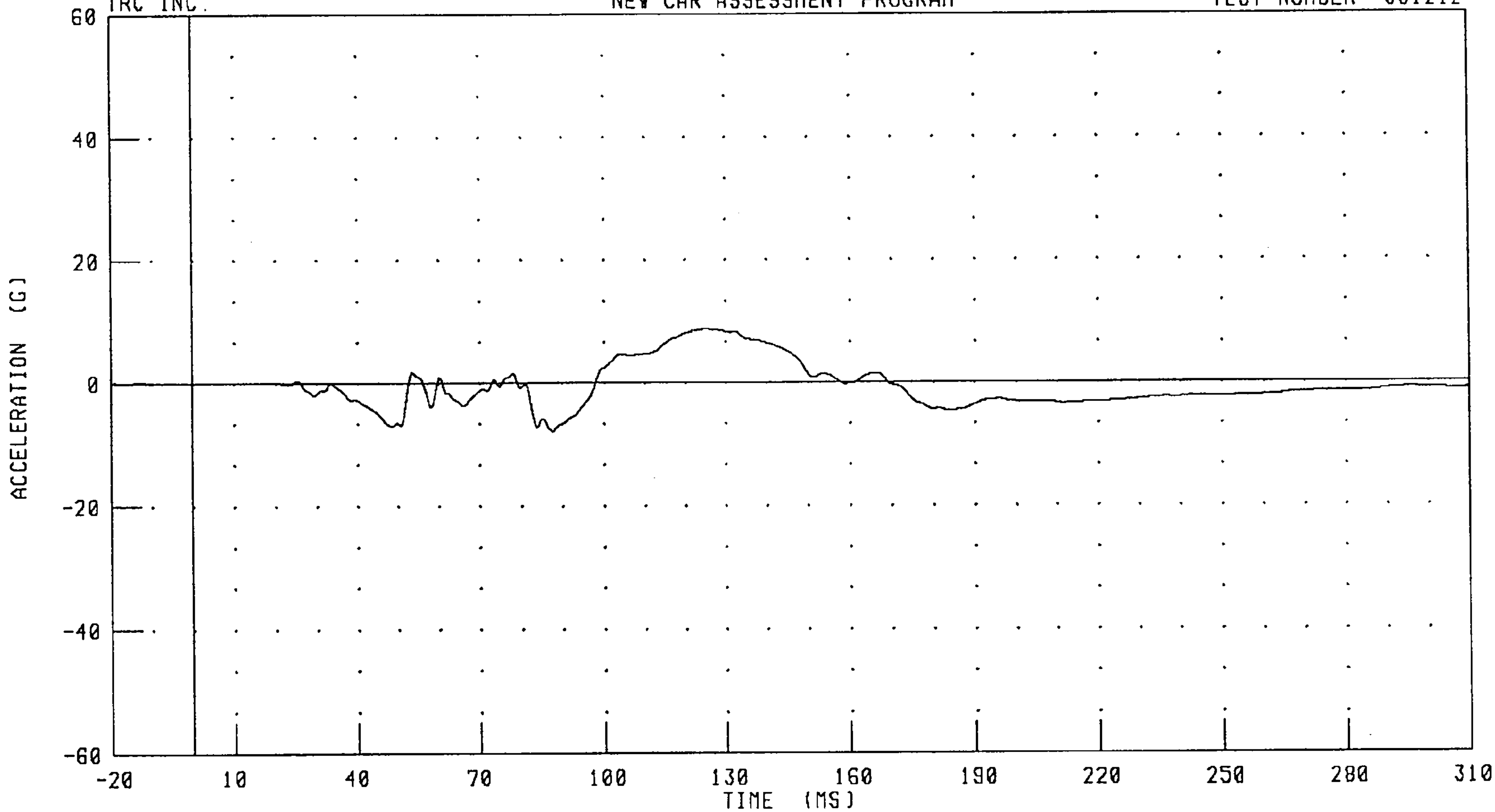
CHANNEL: CSTYR1 FILTER: CH. CLASS 180

PEAK DATA: 5.75 G @ 54.88 MS; -4.81 G @ 97.44 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST Z-AXIS ACCELERATION - REDUNDANT
NEW CAR ASSESSMENT PROGRAM

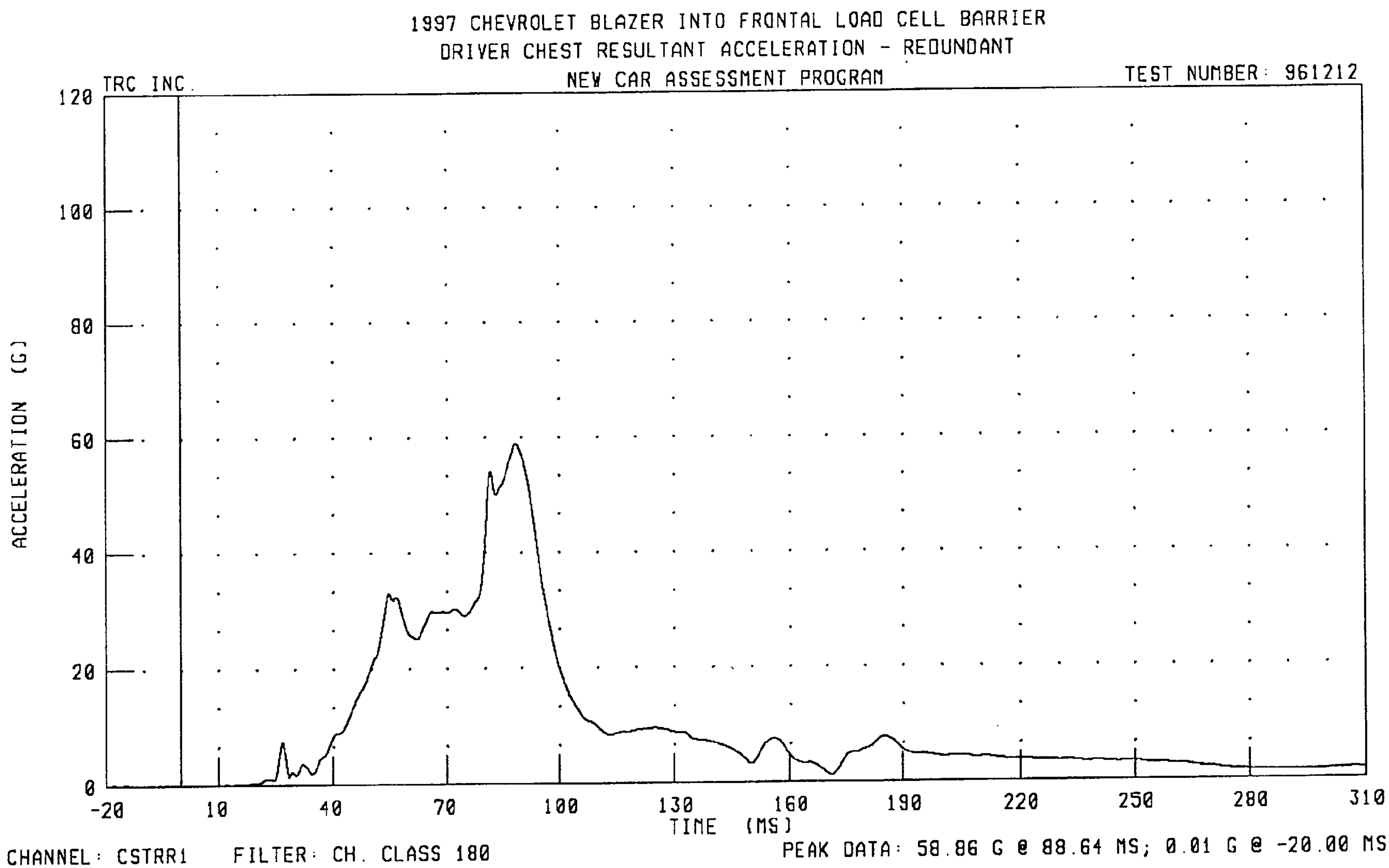
TRC INC.

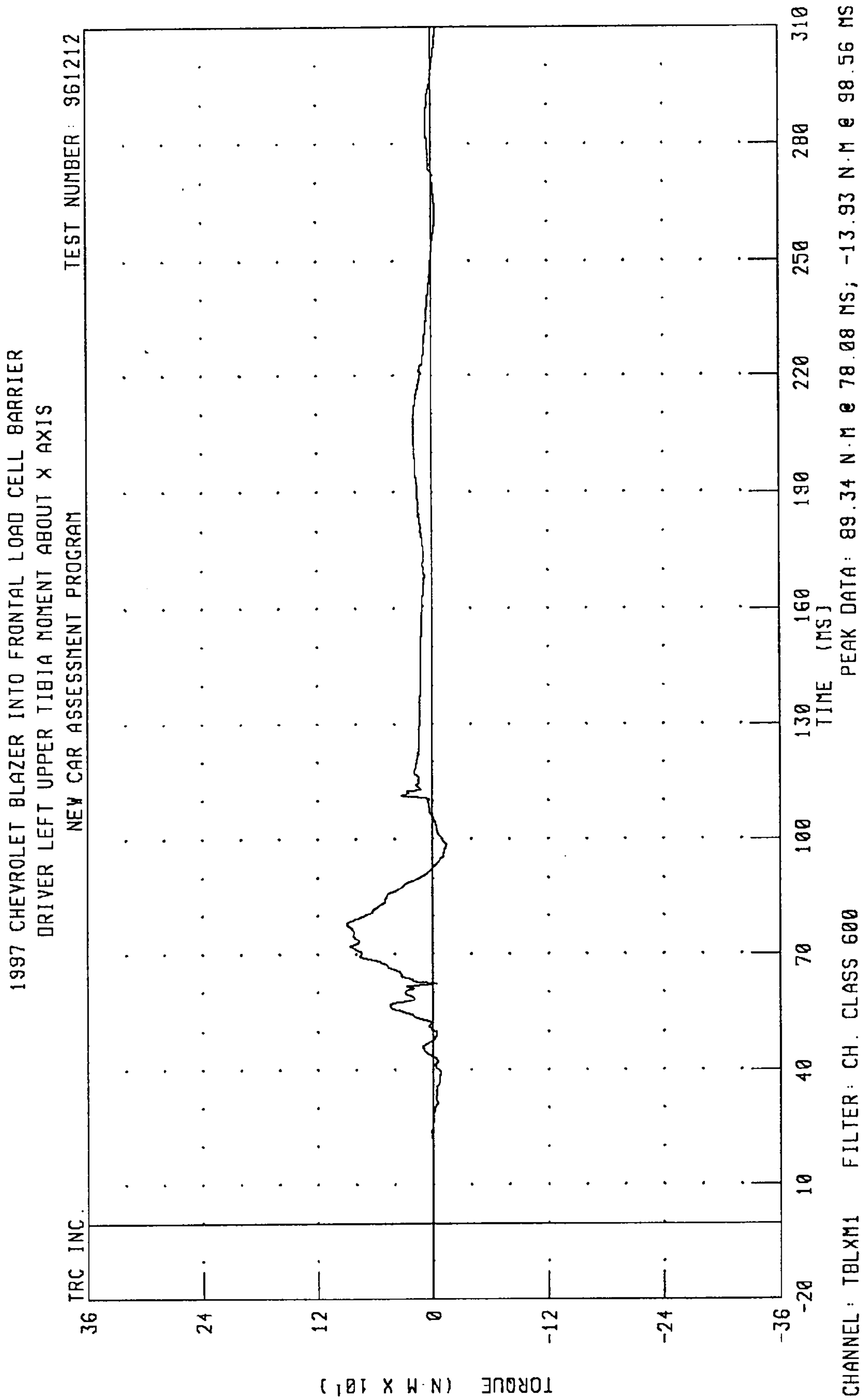
TEST NUMBER: 961212



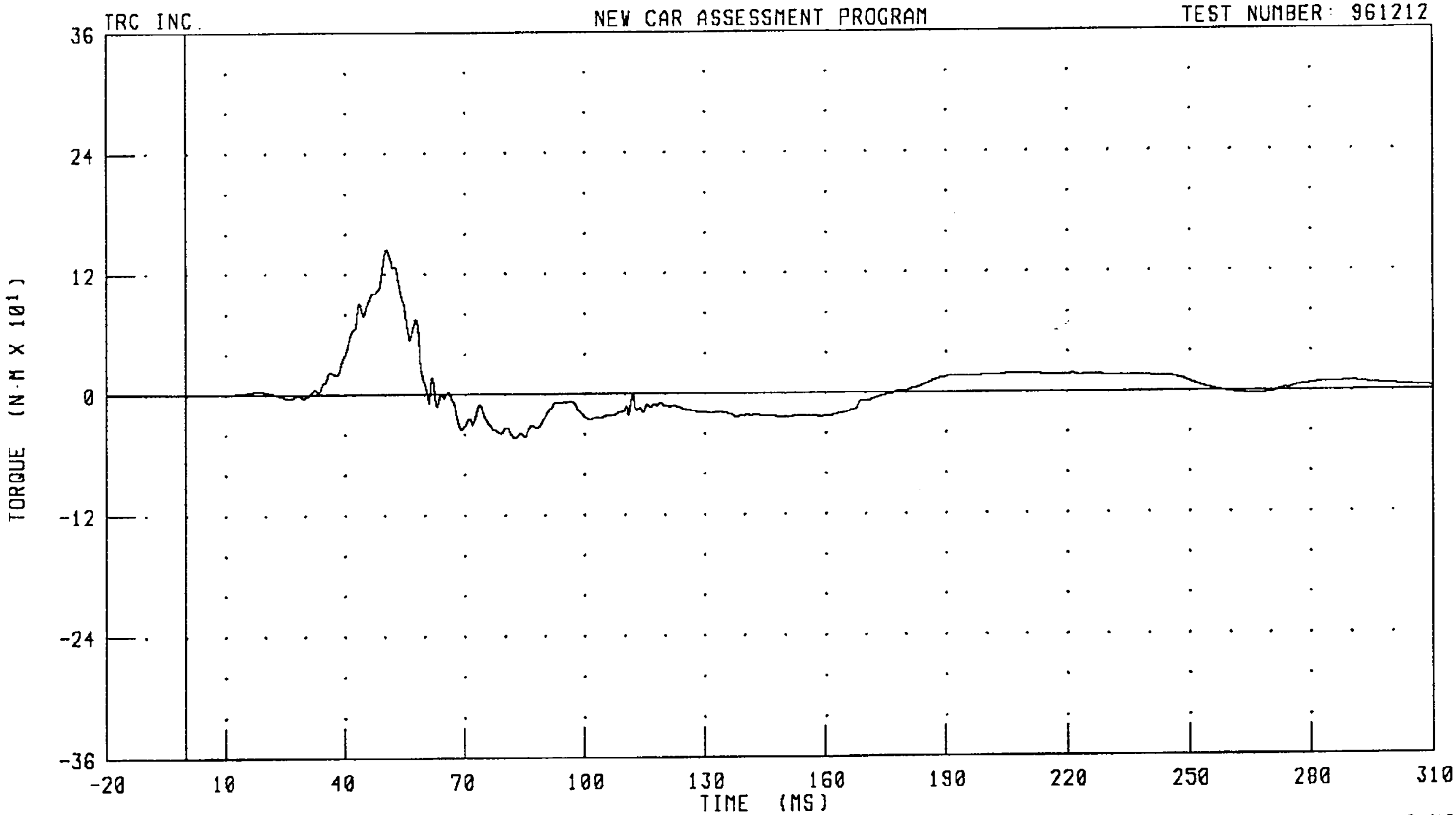
CHANNEL: CSTZR1 FILTER: CH. CLASS 180

PEAK DATA: 8.85 G @ 125.04 MS; -7.93 G @ 87.68 MS


1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER CHEST RESULTANT ACCELERATION - REDUNDANT
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 961212
ACCELERATION (G)
120
100
80
60
40
20
0
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: CSTRR1
FILTER: CH. CLASS 180
PEAK DATA: 58.86 G @ 88.64 MS; 0.01 G @ -20.00 MS

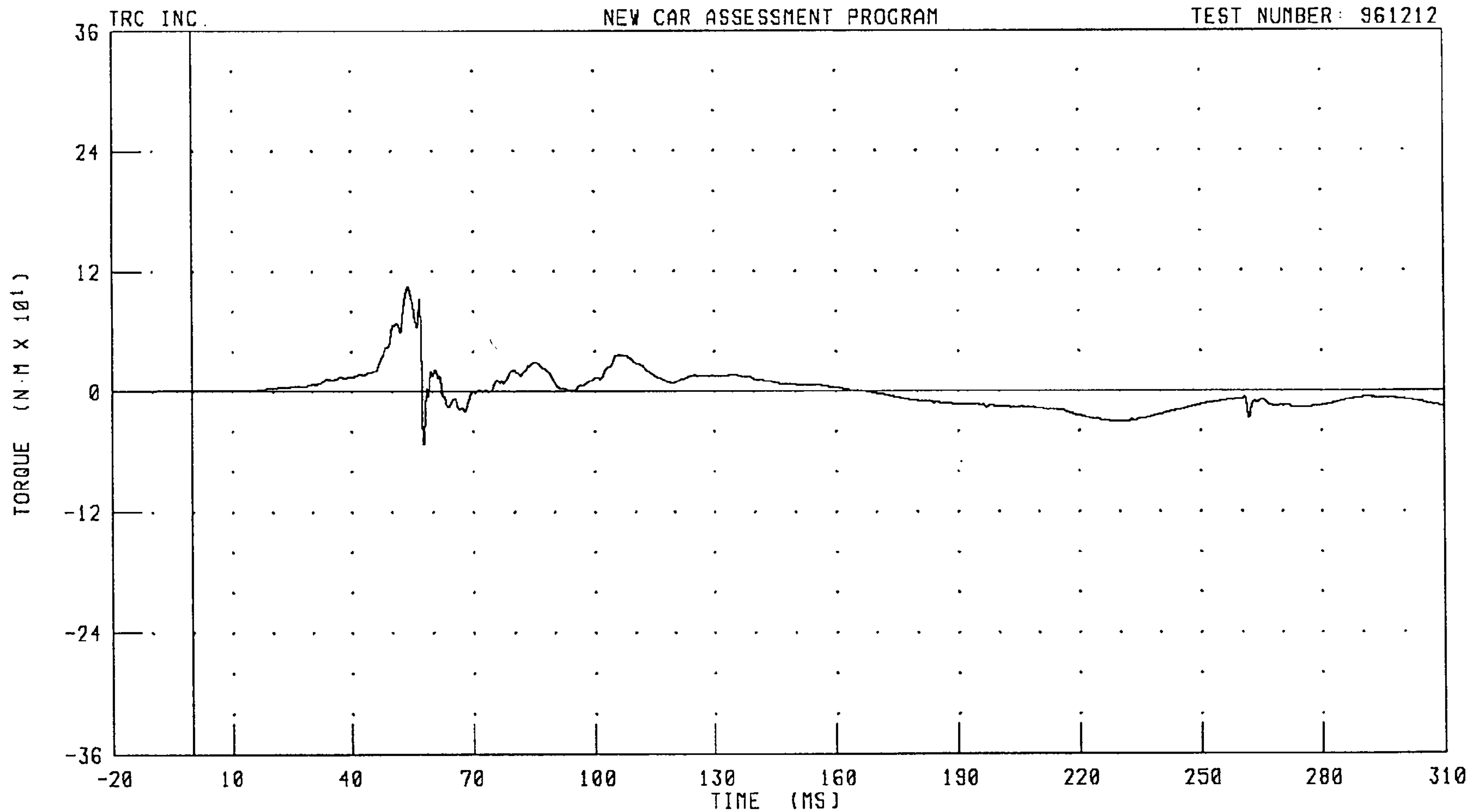

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT UPPER TIBIA MOMENT ABOUT X AXIS
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 961212
TORQUE (N·M X 10¹)
36
24
12
0
-12
-24
-36
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: TBLXM1
FILTER: CH. CLASS 600
PEAK DATA: 89.34 N·M @ 78.08 MS; -13.93 N·M @ 98.56 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT UPPER TIBIA MOMENT ABOUT Y AXIS
NEW CAR ASSESSMENT PROGRAM

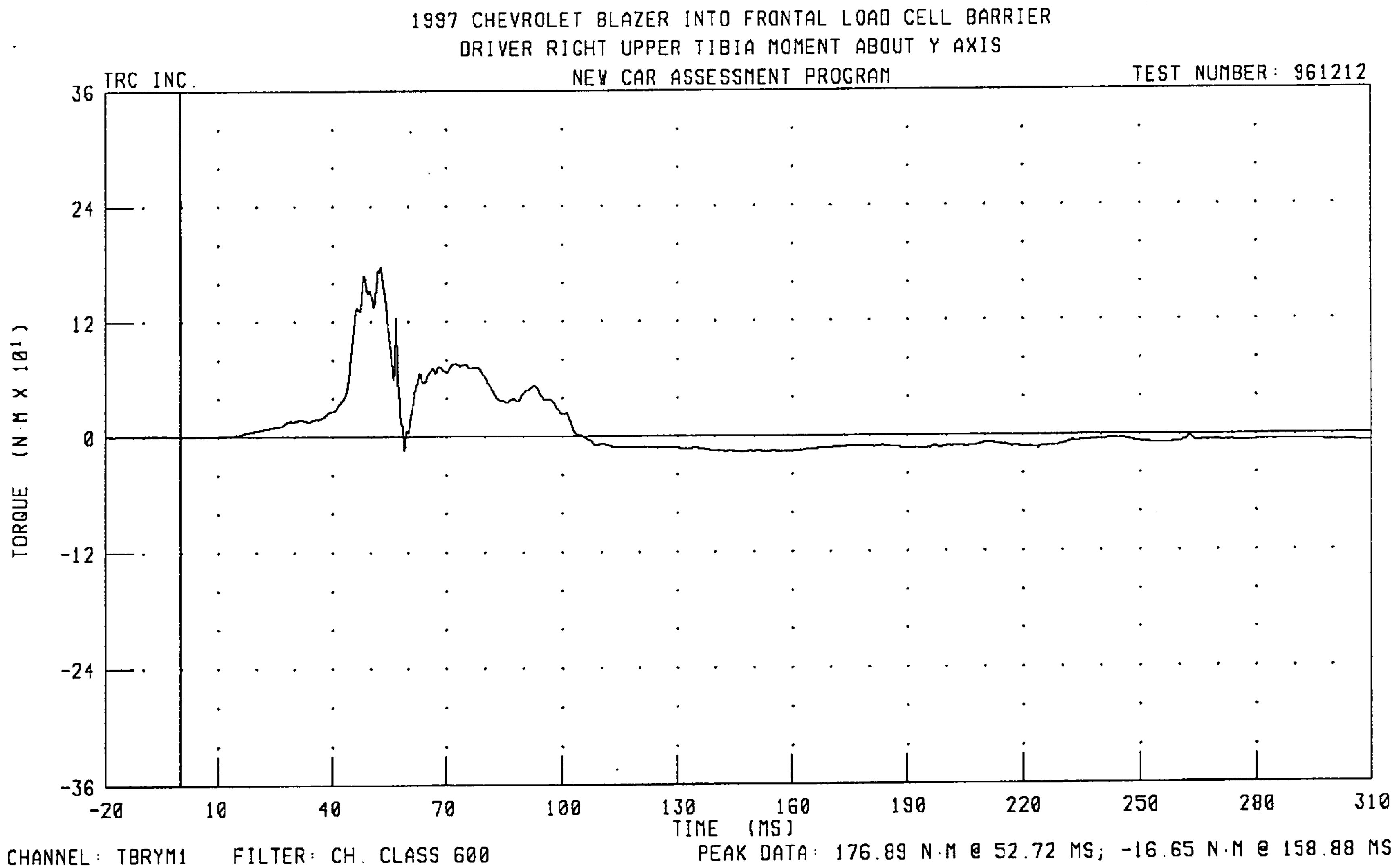


CHANNEL: TBLYM1   FILTER: CH. CLASS 600   PEAK DATA: 144.28 N·M @ 50.48 MS; -43.84 N·M @ 82.48 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT UPPER TIBIA MOMENT ABOUT X AXIS
NEW CAR ASSESSMENT PROGRAM

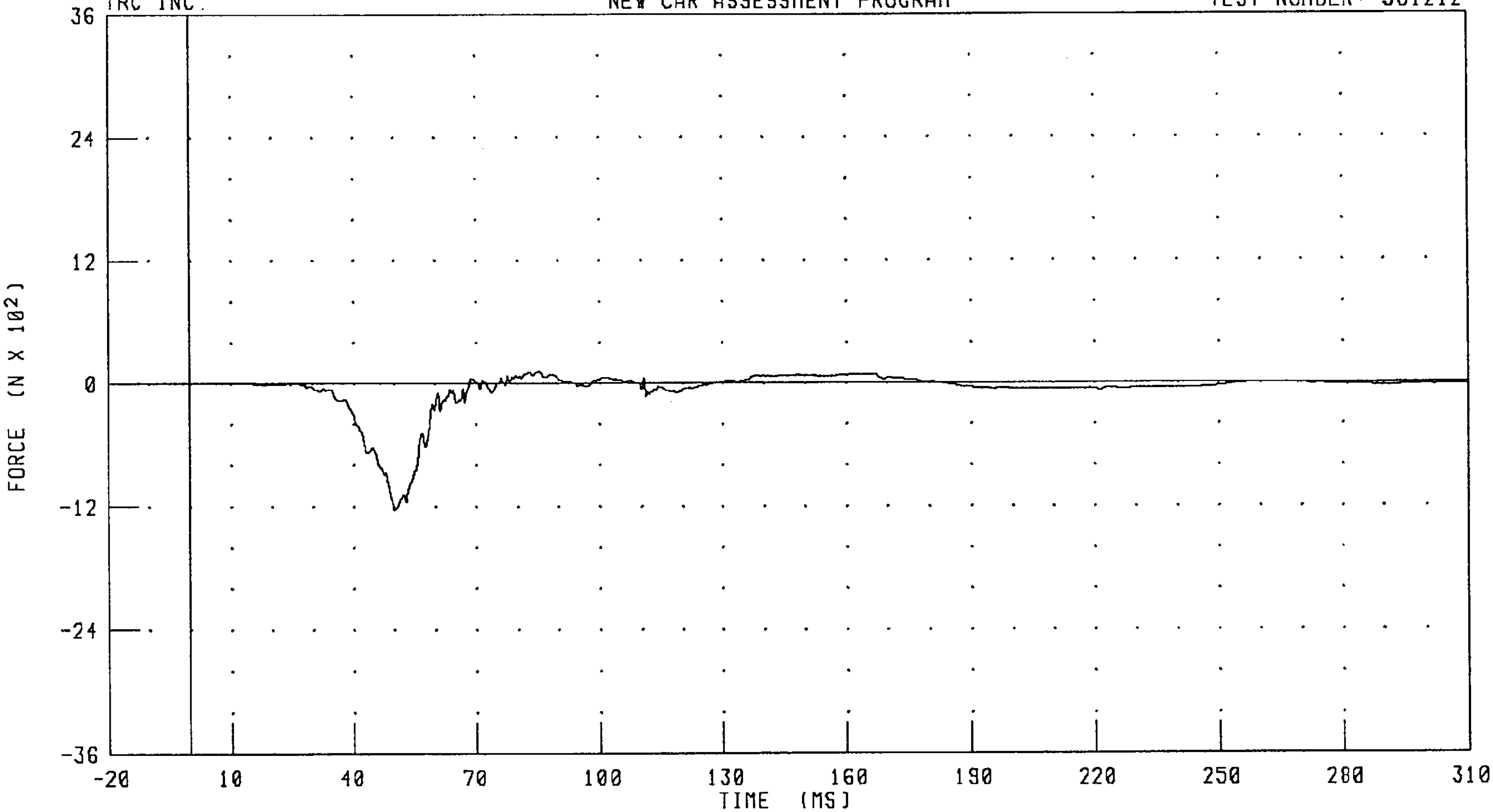


CHANNEL: TBRXM1 FILTER: CH. CLASS 600 PEAK DATA: 104.31 N·M @ 54.00 MS; -52.64 N·M @ 57.92 MS


1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT UPPER TIBIA MOMENT ABOUT Y AXIS
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 961212
36
24
12
0
-12
-24
-36
TORQUE (N·M X 10¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: TBRYM1
FILTER: CH. CLASS 600
PEAK DATA: 176.89 N·M @ 52.72 MS; -16.65 N·M @ 158.88 MS

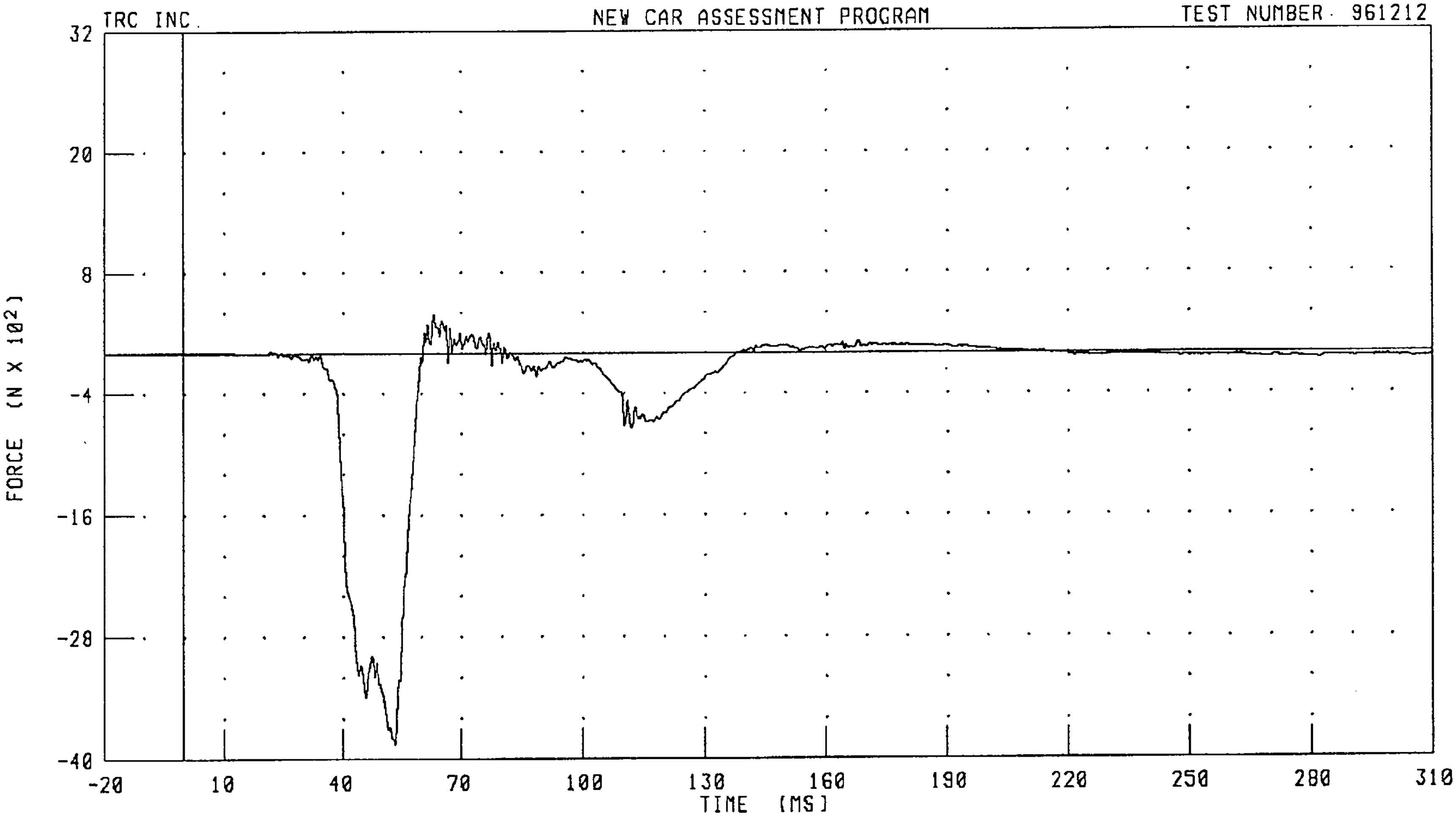
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT LOWER TIBIA X-AXIS FORCE
NEW CAR ASSESSMENT PROGRAM

TRC INC. TEST NUMBER: 961212



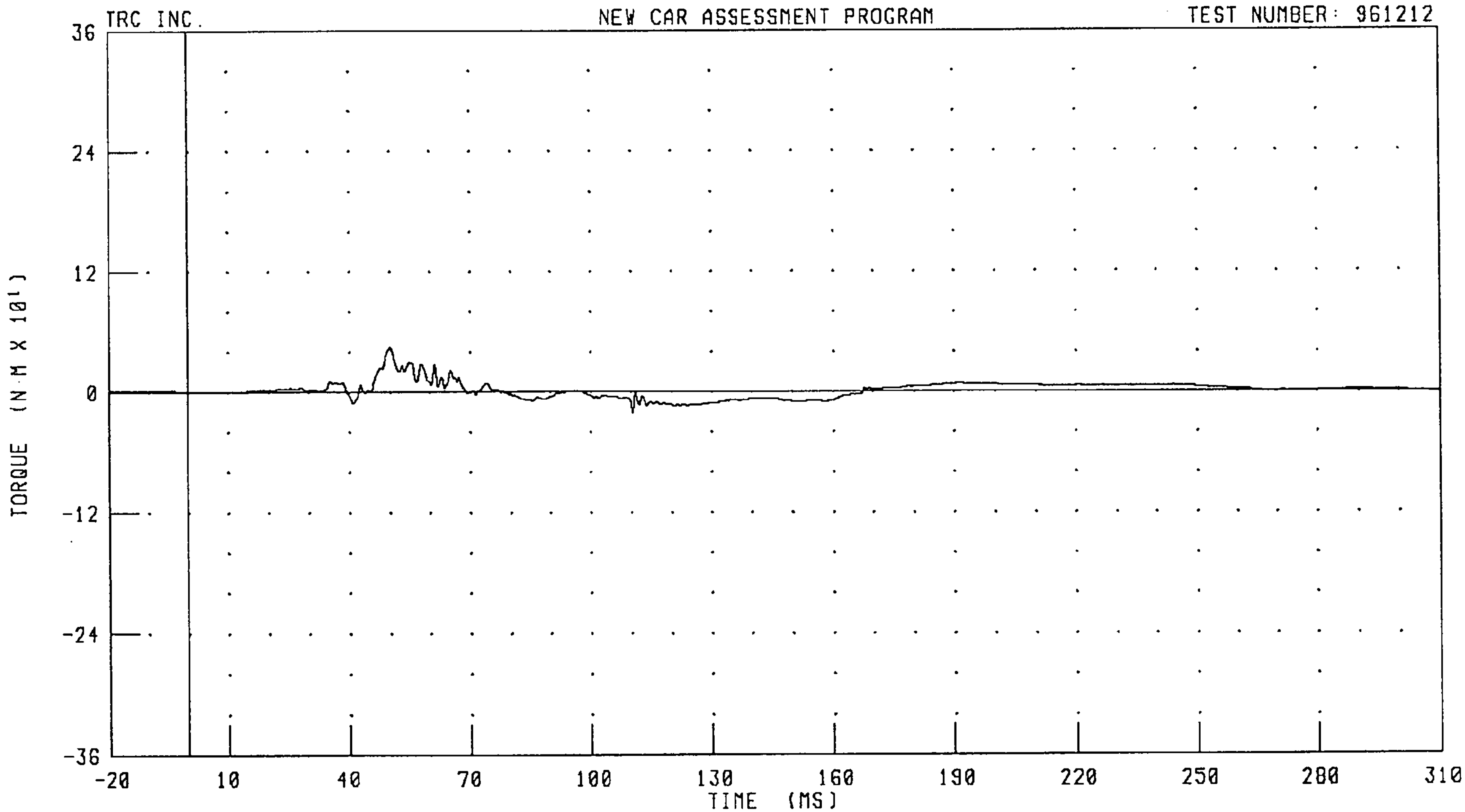
CHANNEL: ANLXF1 FILTER: CH. CLASS 600 PEAK DATA: 120.44 N @ 85.36 MS; -1238.74 N @ 50.16 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT LOWER TIBIA Z-AXIS FORCE
NEW CAR ASSESSMENT PROGRAM

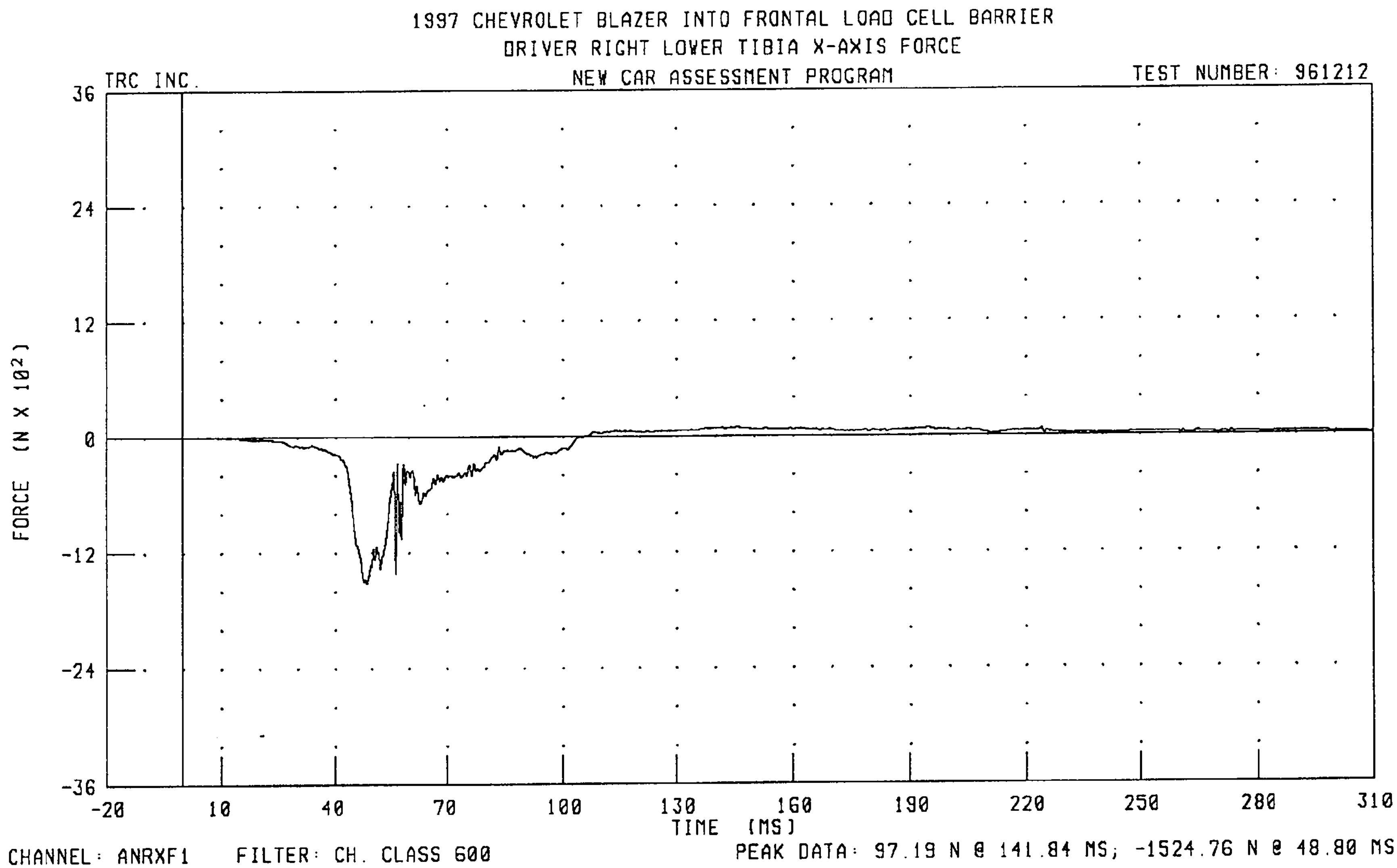


CHANNEL: ANLZF1 FILTER: CH. CLASS 600 PEAK DATA: 379.29 N @ 63.20 MS; -3854.04 N @ 53.04 MS

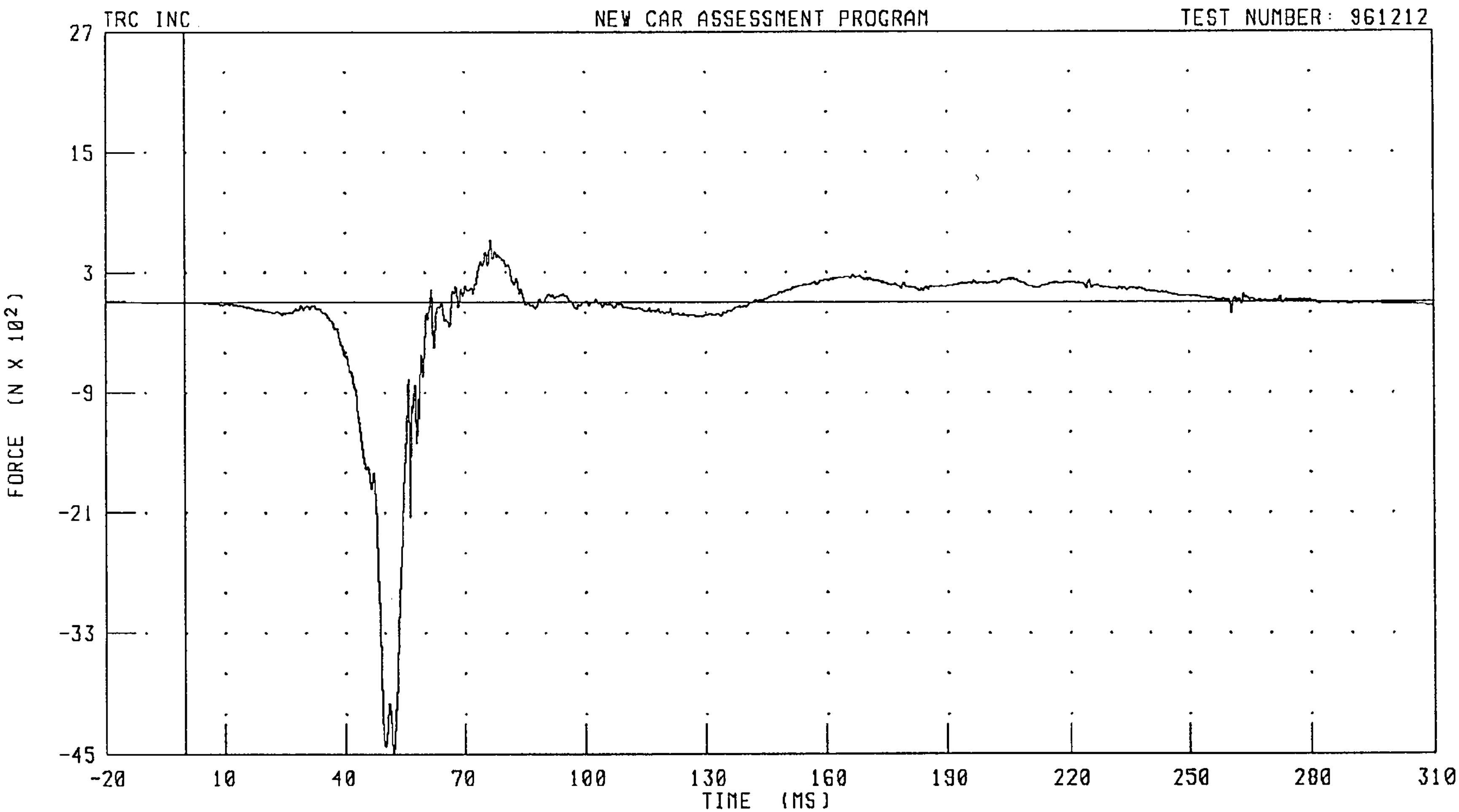
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT LOWER TIBIA MOMENT ABOUT Y AXIS
NEW CAR ASSESSMENT PROGRAM



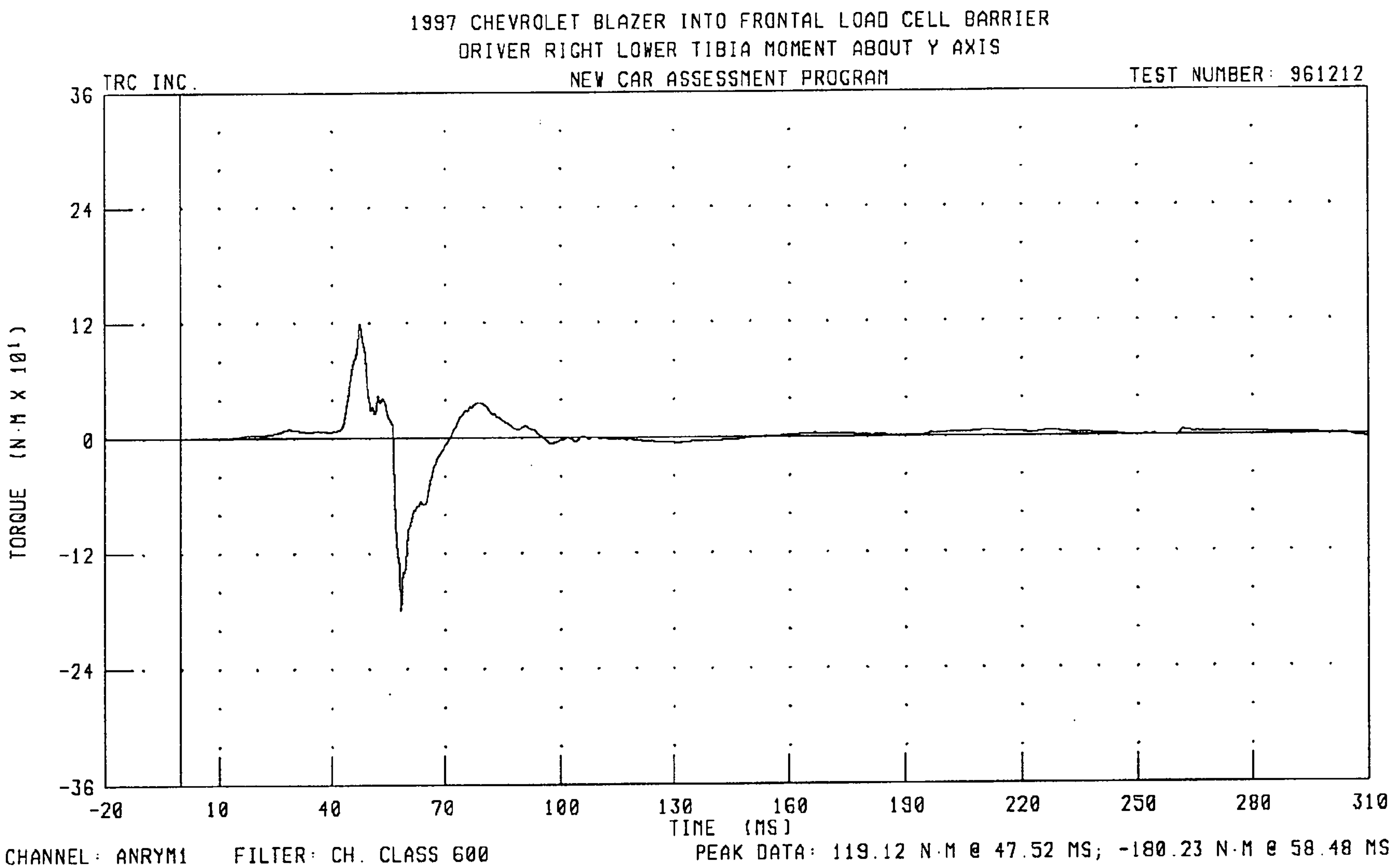
CHANNEL: ANLYM1 FILTER: CH. CLASS 600 PEAK DATA: 44.56 N·M @ 50.08 MS; -21.05 N·M @ 110.48 MS


1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT LOWER TIBIA X-AXIS FORCE
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 961212
FORCE (N X 10²)
36
24
12
0
-12
-24
-36
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: ANRXF1
FILTER: CH. CLASS 600
PEAK DATA: 97.19 N @ 141.84 MS; -1524.76 N @ 48.80 MS

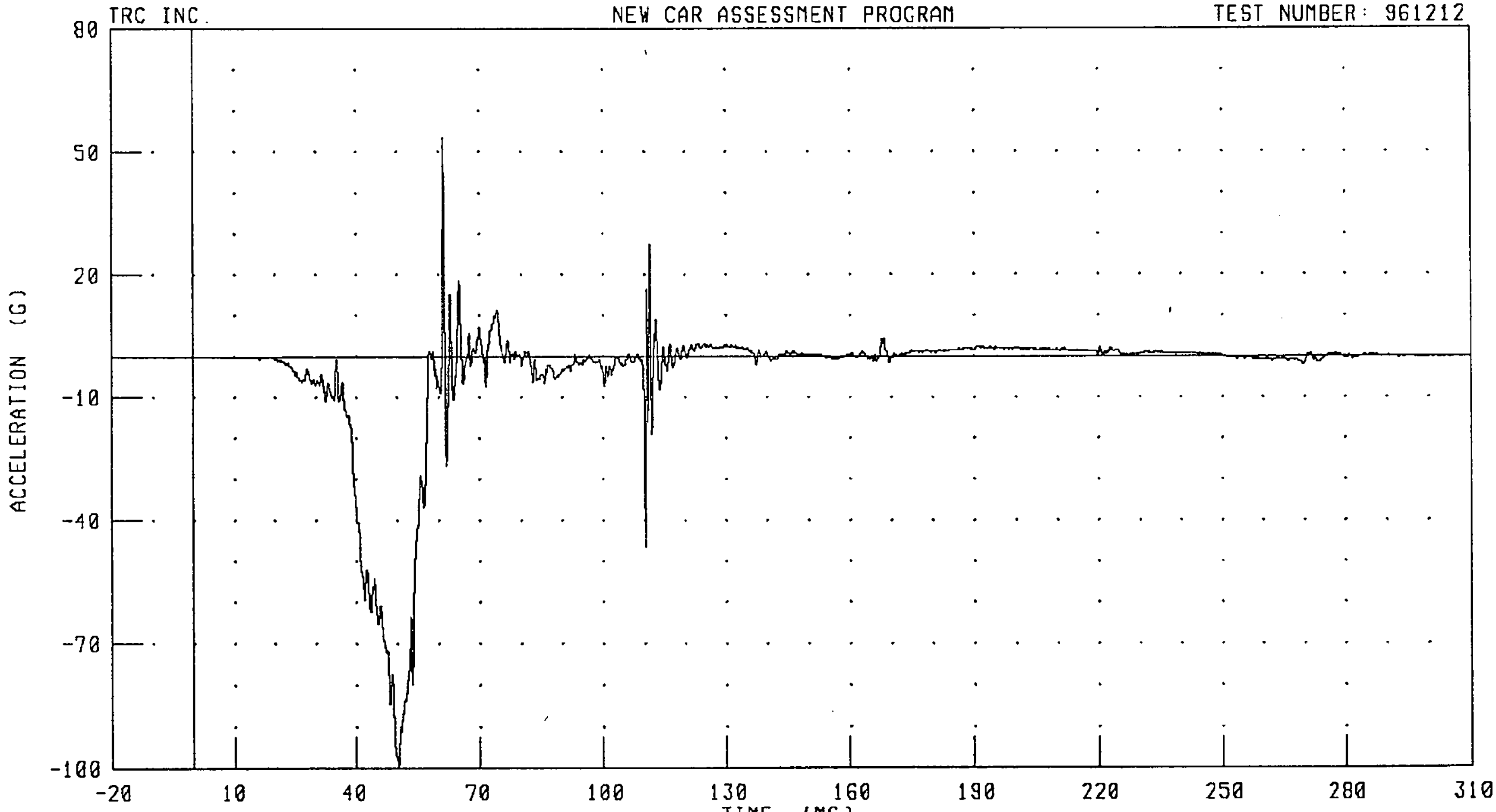
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT LOWER TIBIA Z-AXIS FORCE
NEW CAR ASSESSMENT PROGRAM



CHANNEL: ANRZF1 FILTER: CH. CLASS 600 PEAK DATA: 623.75 N @ 76.48 MS; -4484.57 N @ 52.16 MS

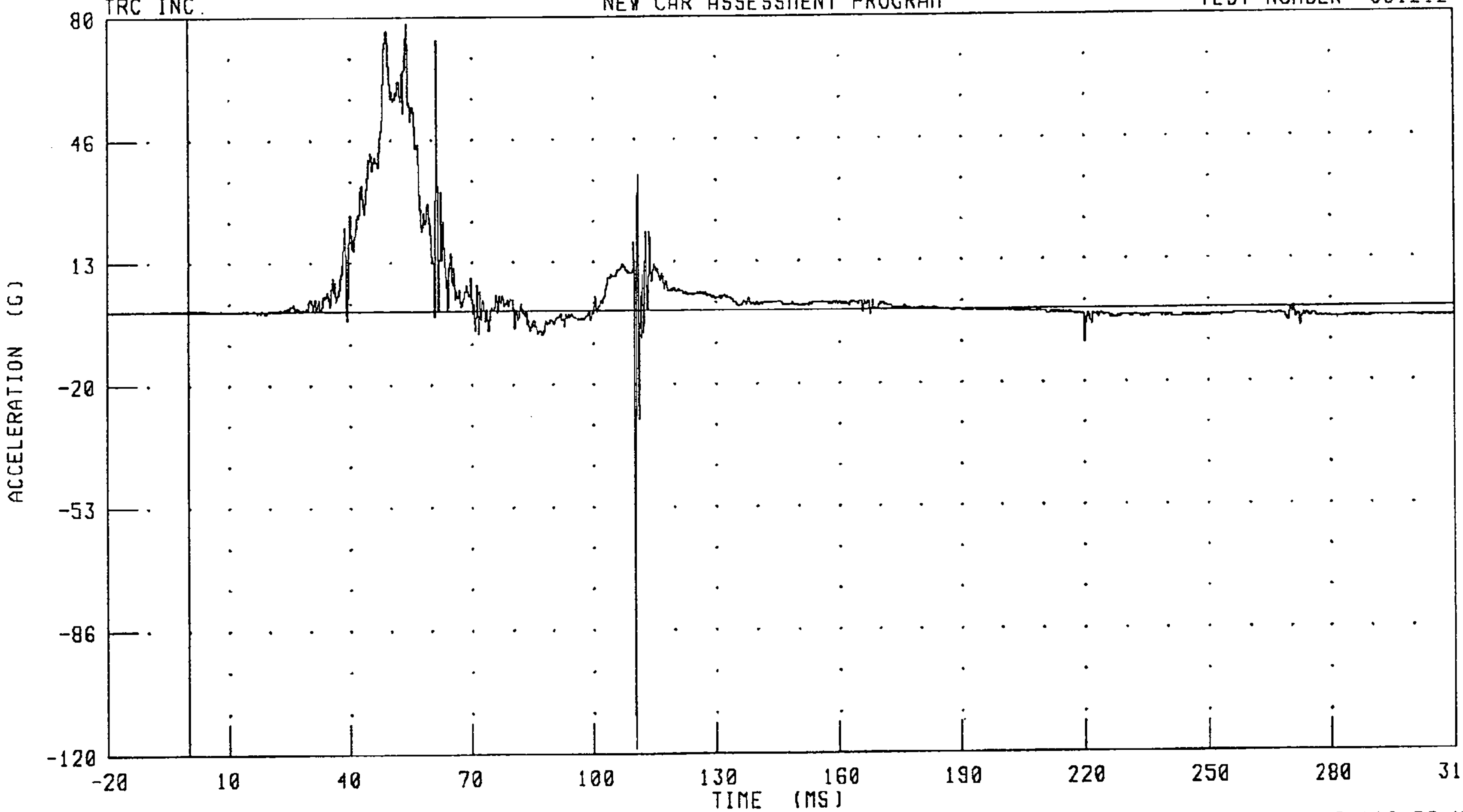

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT LOWER TIBIA MOMENT ABOUT Y AXIS
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 961212
TORQUE (N·M X 10¹)
36
24
12
0
-12
-24
-36
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: ANRYM1
FILTER: CH. CLASS 600
PEAK DATA: 119.12 N·M @ 47.52 MS; -180.23 N·M @ 58.48 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT FOOT X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM



CHANNEL: FTLXG1   FILTER: CH. CLASS 1000   PEAK DATA: 53.60 G @ 61.36 MS; -99.52 G @ 50.24 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT FOOT Z-AXIS ACCELERATION AT HEEL
NEW CAR ASSESSMENT PROGRAM

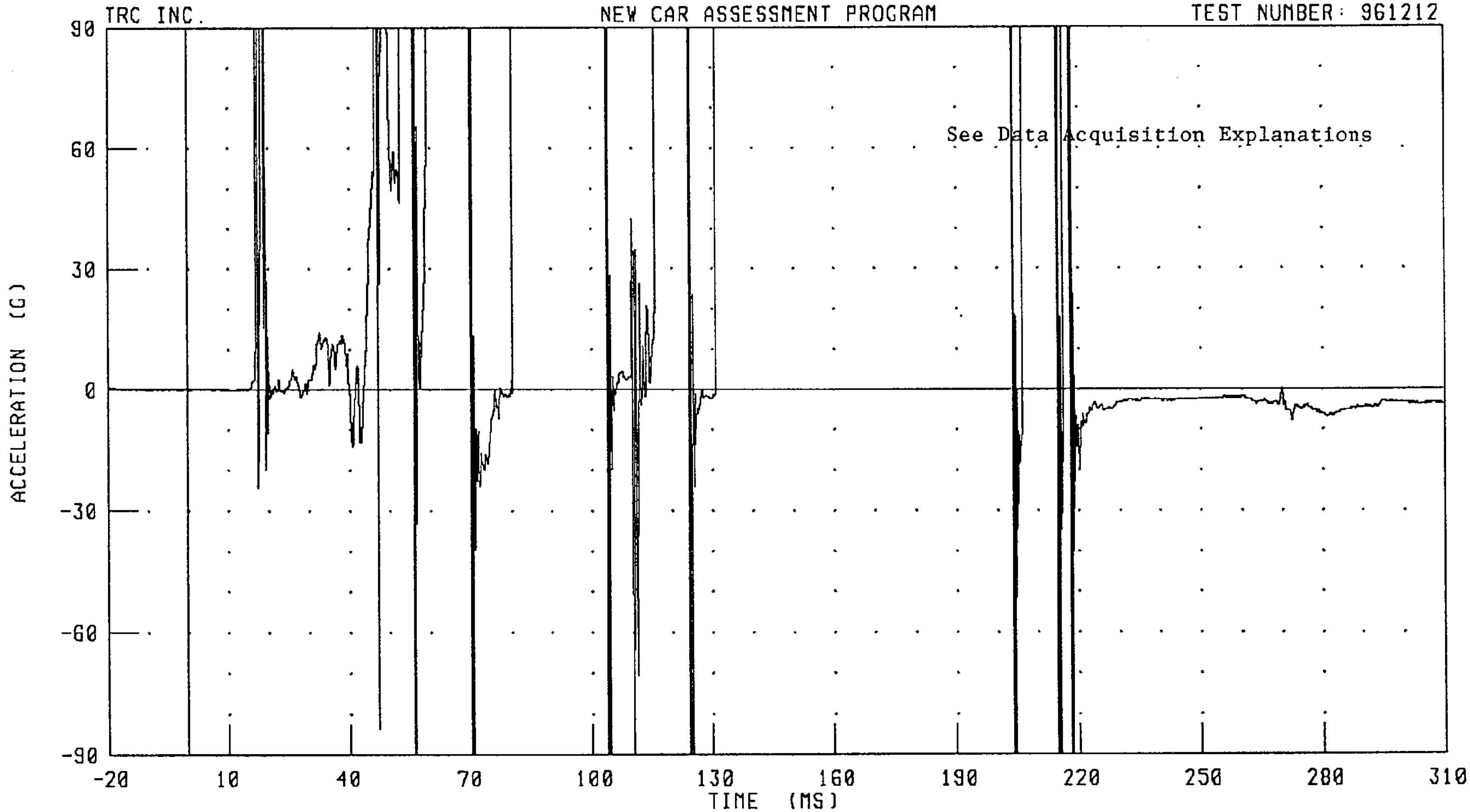


CHANNEL: FTLZH1   FILTER: CH. CLASS 1000

PEAK DATA: 78.22 G @ 53.92 MS; -118.89 G @ 110.32 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER LEFT FOOT Z-AXIS ACCELERATION AT TOE

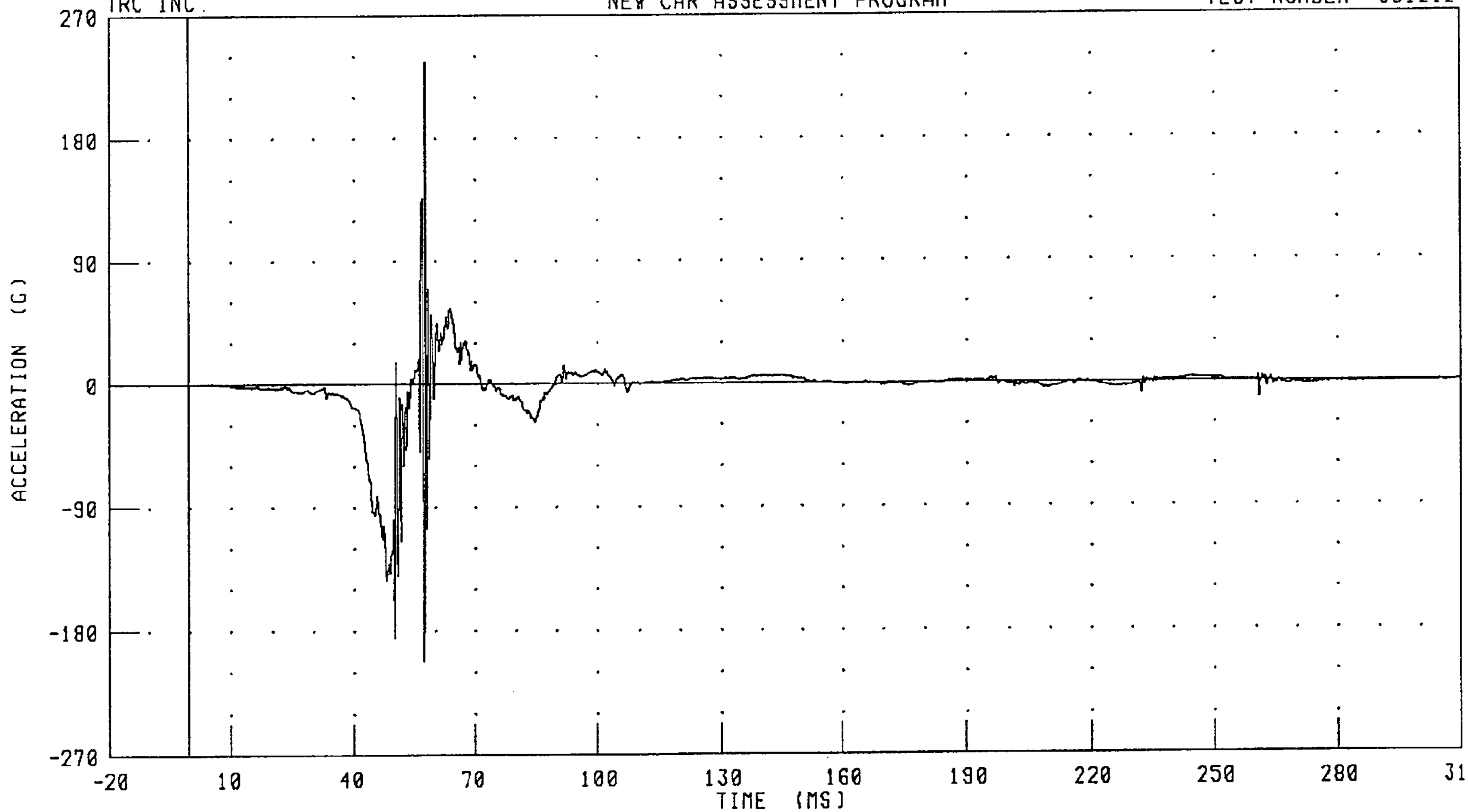
TRC INC. NEW CAR ASSESSMENT PROGRAM TEST NUMBER: 961212



CHANNEL: FTLZT1 FILTER: CH. CLASS 1000 PEAK DATA: 812.97 G @ 46.72 MS; -587.01 G @ 70.08 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT FOOT X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

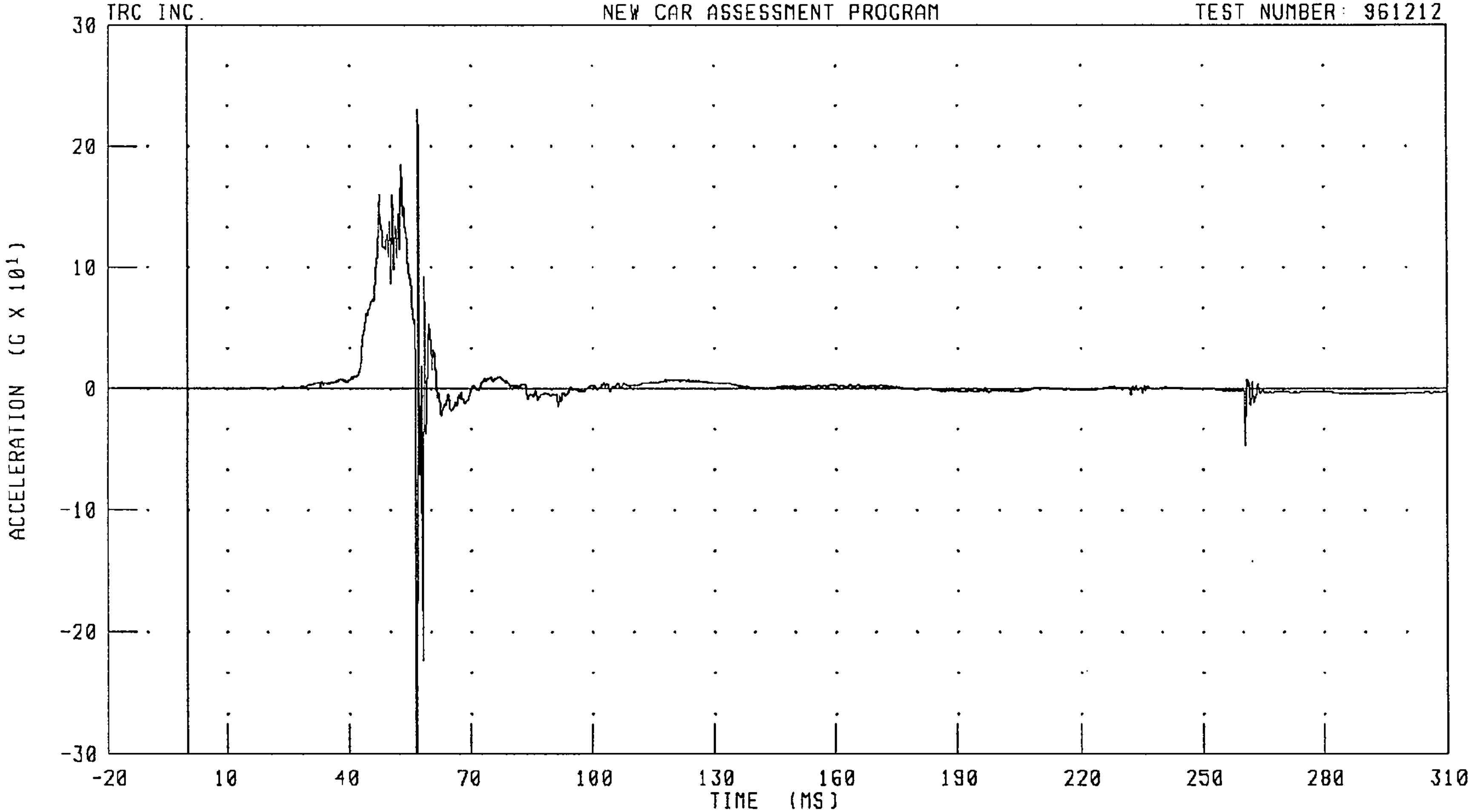
TEST NUMBER: 961212



CHANNEL: FTRXG1   FILTER: CH. CLASS 1000

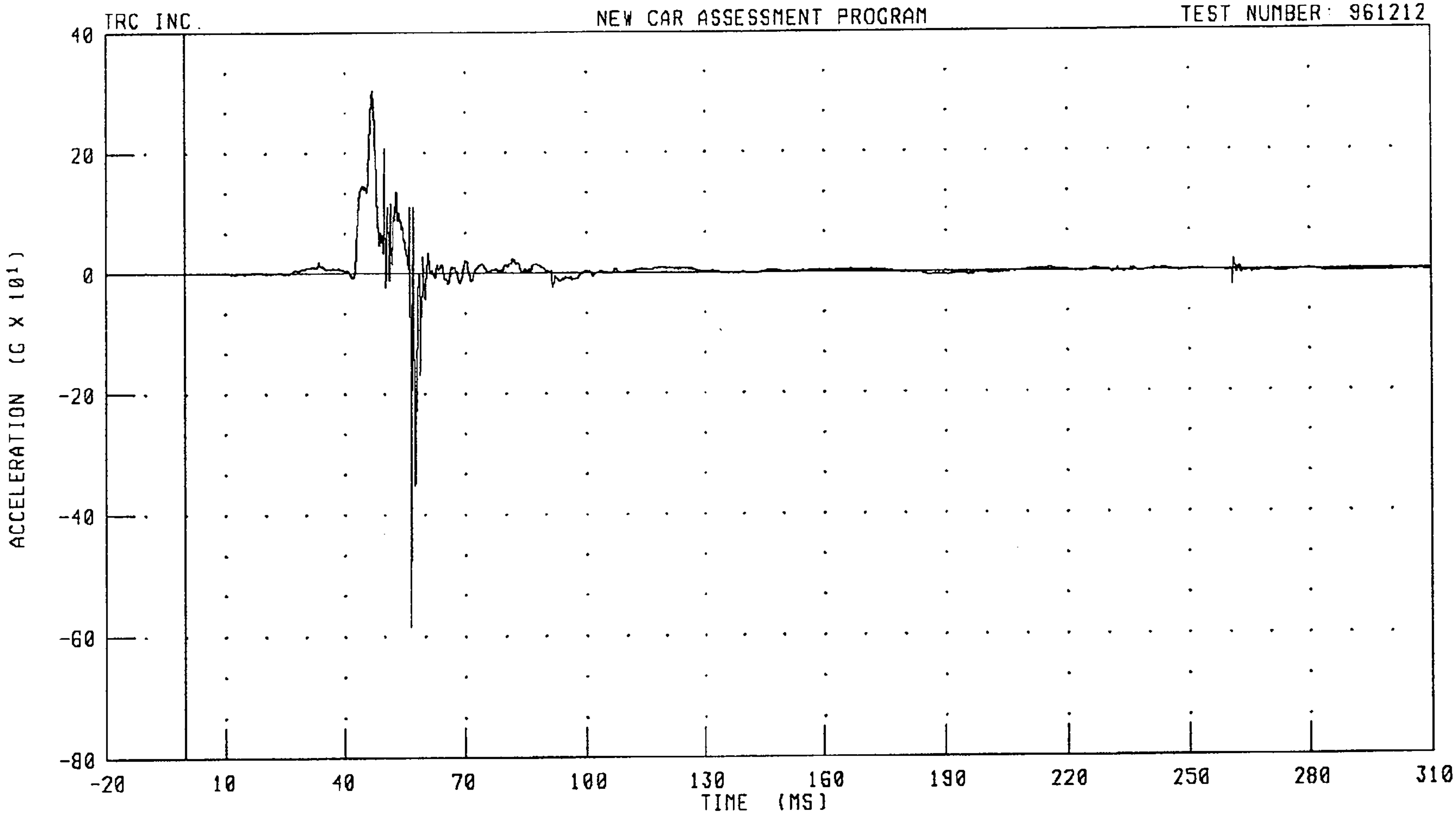
PEAK DATA: 236.50 G @ 57.68 MS; -202.12 G @ 57.28 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT FOOT Z-AXIS ACCELERATION AT HEEL
NEW CAR ASSESSMENT PROGRAM



CHANNEL: FTRZH1 FILTER: CH. CLASS 1000 PEAK DATA: 230.10 G @ 56.80 MS; -587.30 G @ 56.48 MS

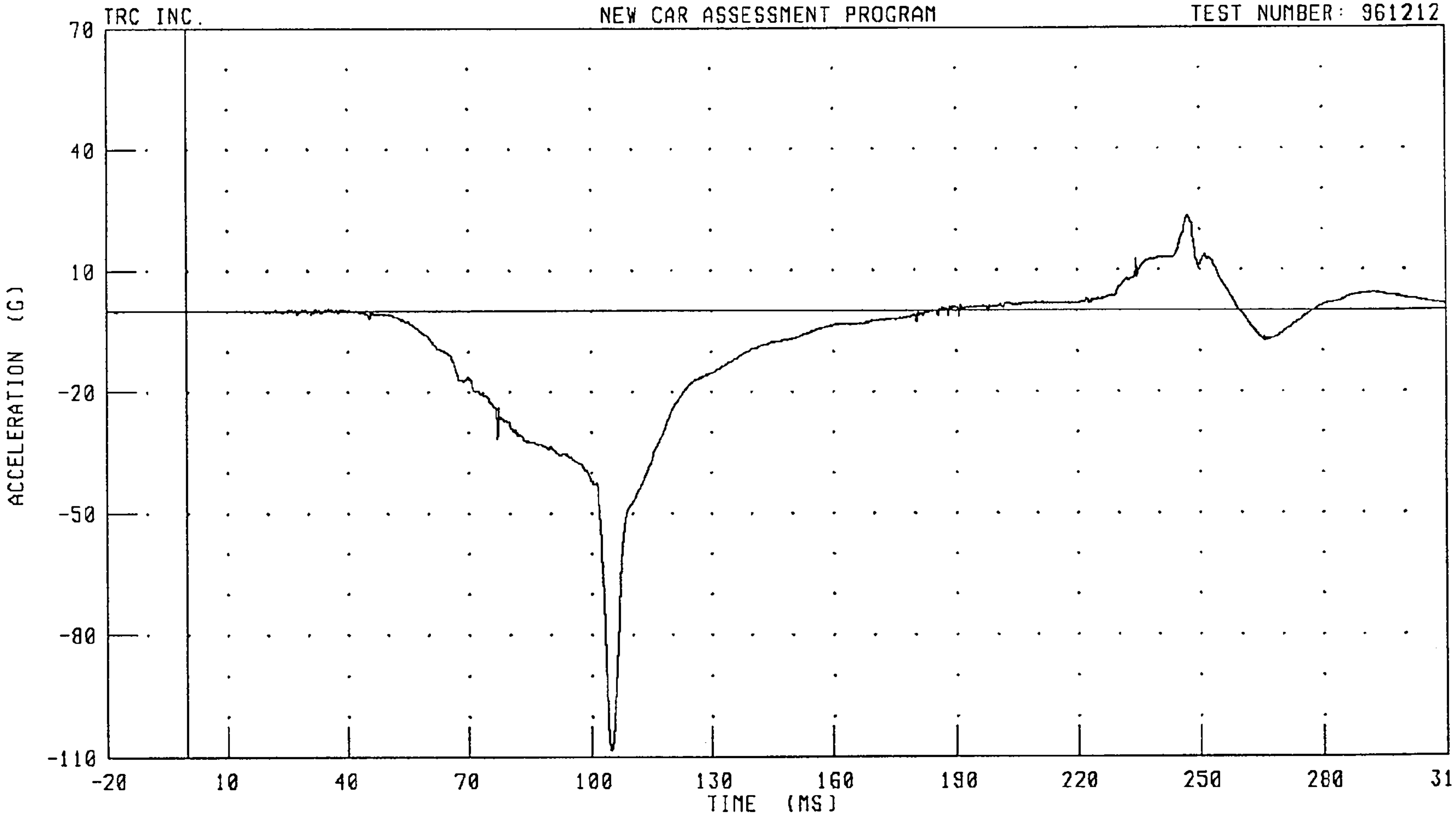
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER RIGHT FOOT Z-AXIS ACCELERATION AT TOE
NEW CAR ASSESSMENT PROGRAM



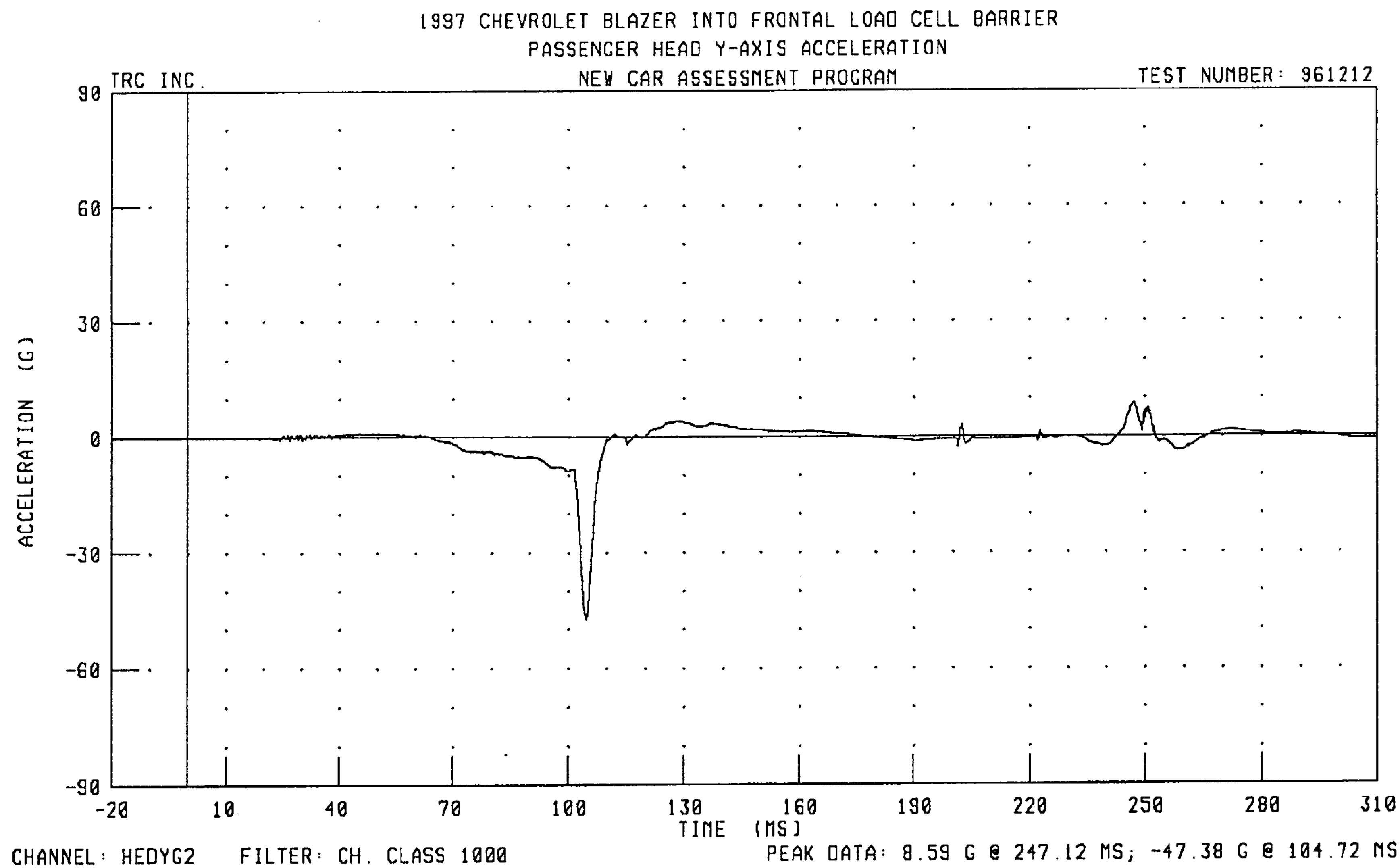
CHANNEL: FTRZT1 FILTER: CH. CLASS 1000

PEAK DATA: 303.12 G @ 47.04 MS; -584.52 G @ 56.56 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM



CHANNEL: HEDXG2   FILTER: CH. CLASS 1000   PEAK DATA: 23.35 G @ 247.20 MS; -108.46 G @ 104.72 MS

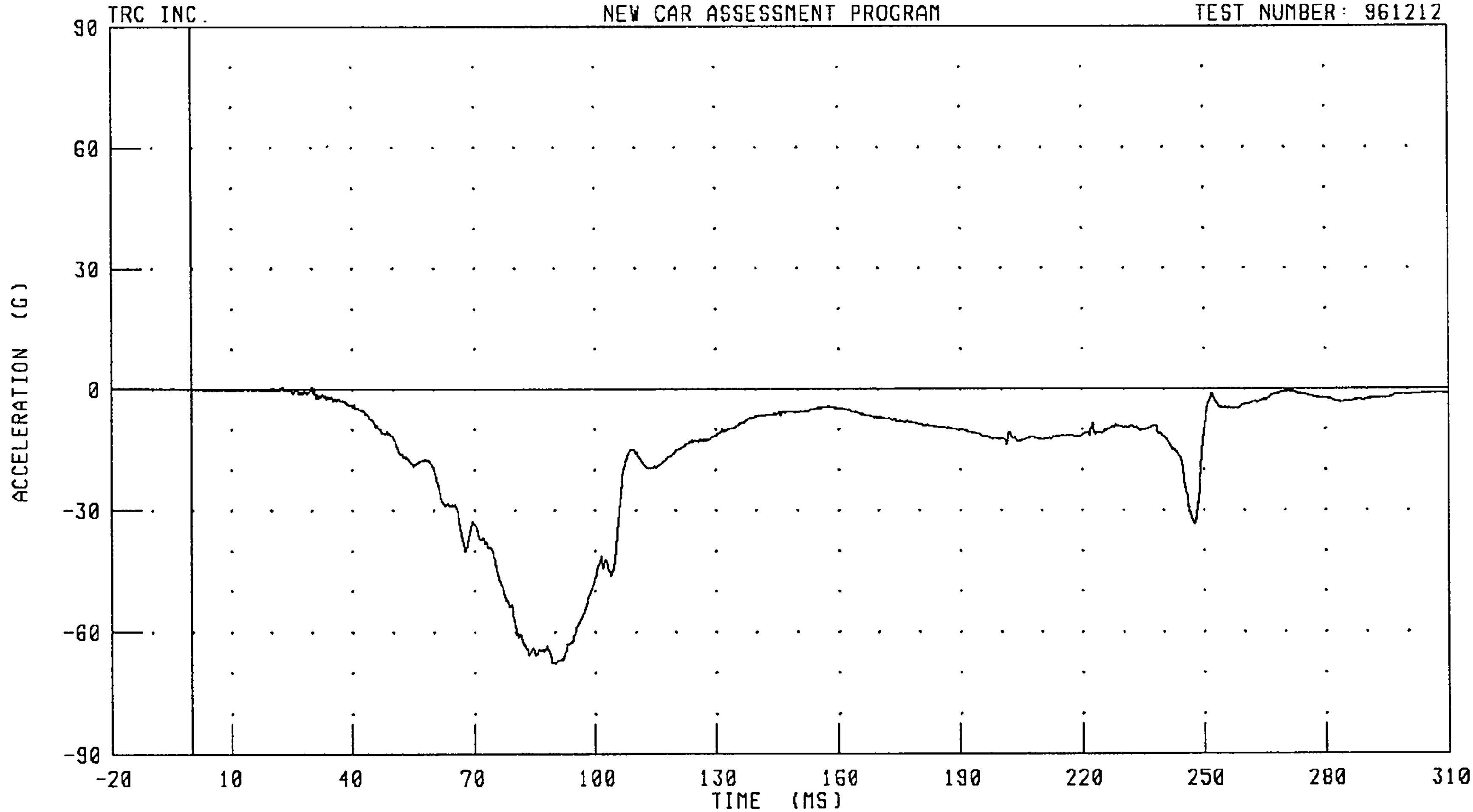

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Y-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 961212
ACCELERATION (G)
90
60
30
0
-30
-60
-90
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDYG2
FILTER: CH. CLASS 1000
PEAK DATA: 8.59 G @ 247.12 MS; -47.38 G @ 104.72 MS

961212

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Z-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TRC INC.

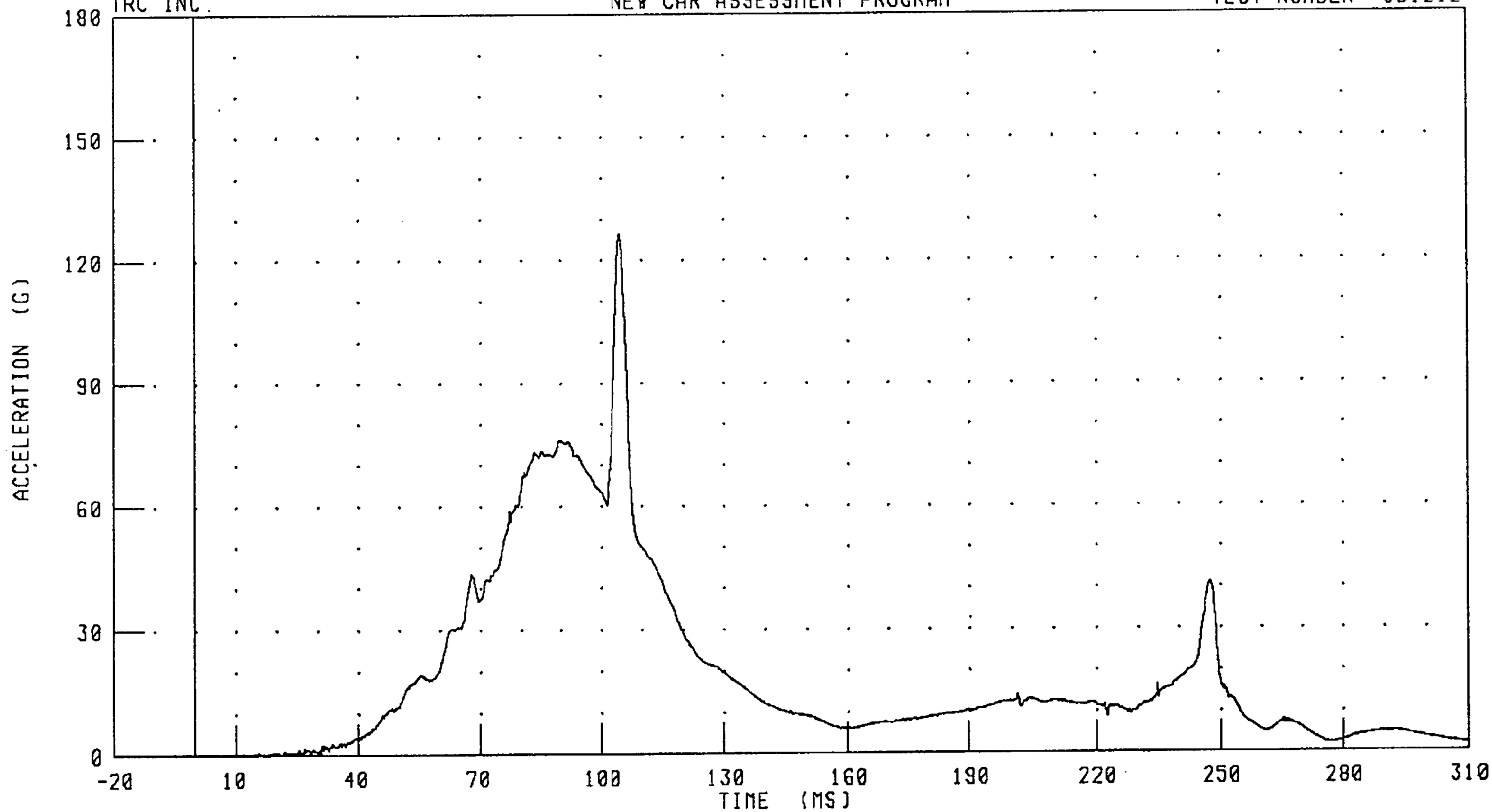
TEST NUMBER: 961212



CHANNEL: HEDZG2 FILTER: CH. CLASS 1000 PEAK DATA: 0.40 G @ 22.88 MS; -67.87 G @ 90.08 MS

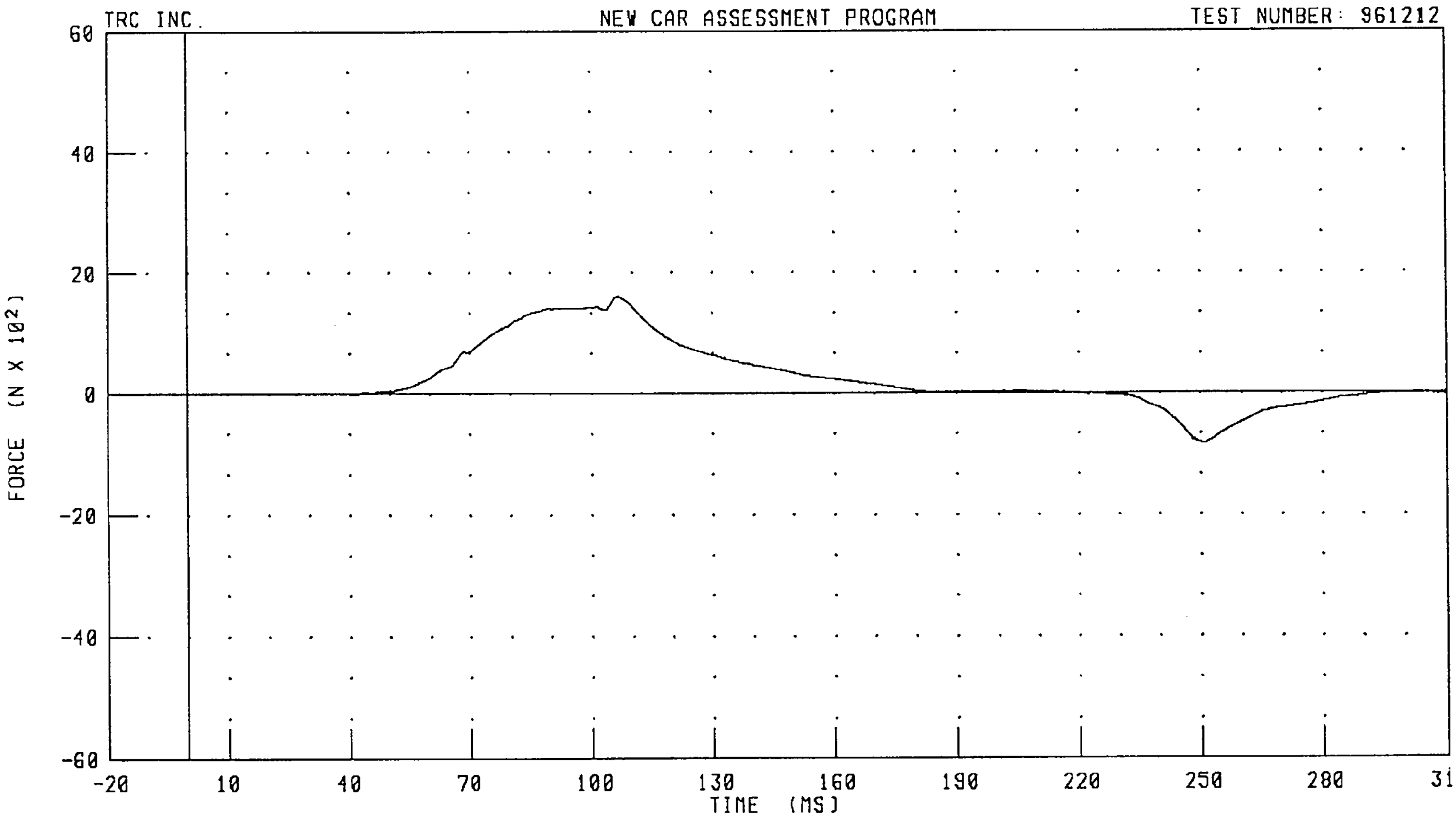
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD RESULTANT ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TRC INC. TEST NUMBER: 961212

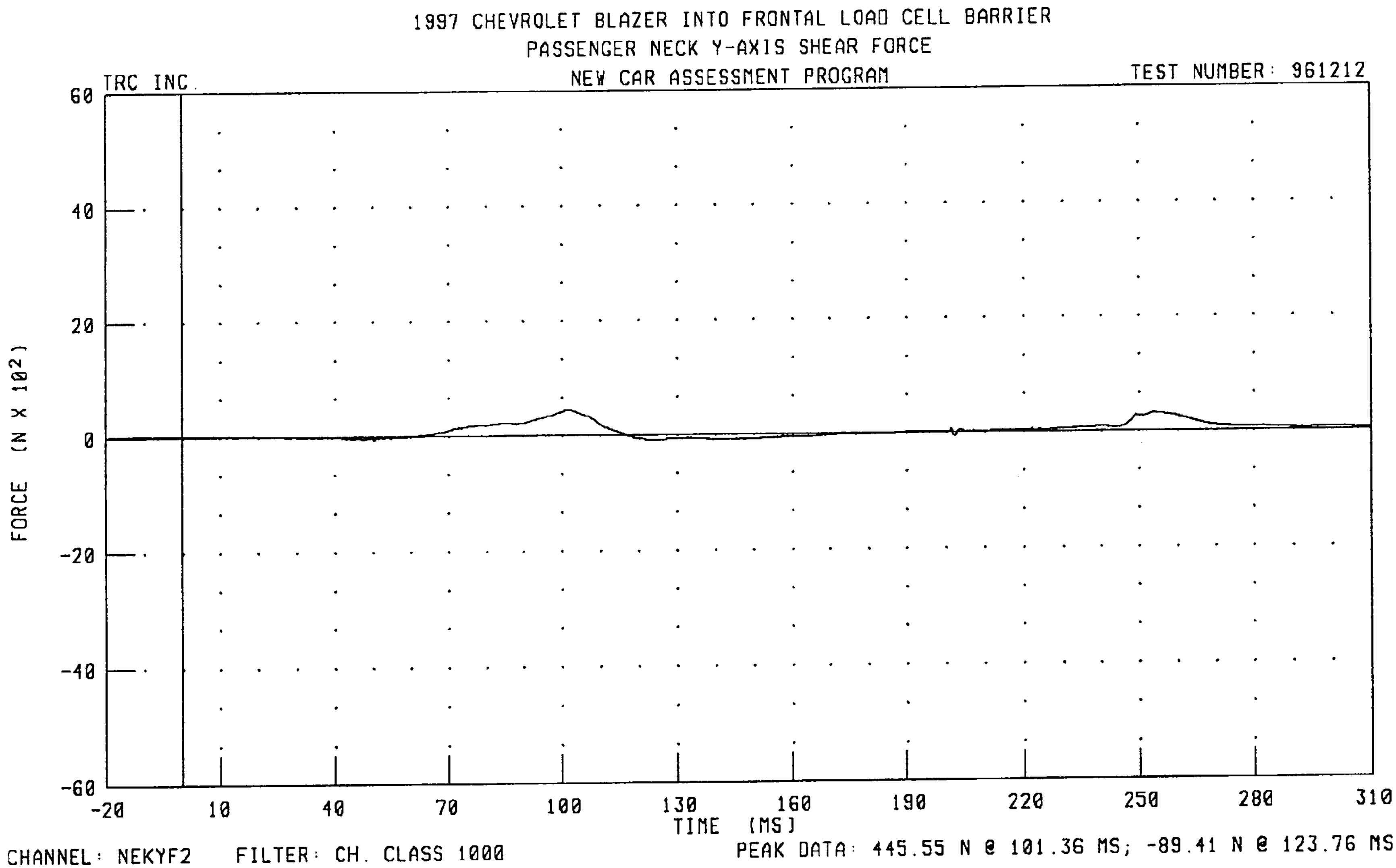


CHANNEL: HEDRG2 FILTER: CH. CLASS 1000 PEAK DATA: 126.53 G @ 104.72 MS; 0.09 G @ -17.20 MS

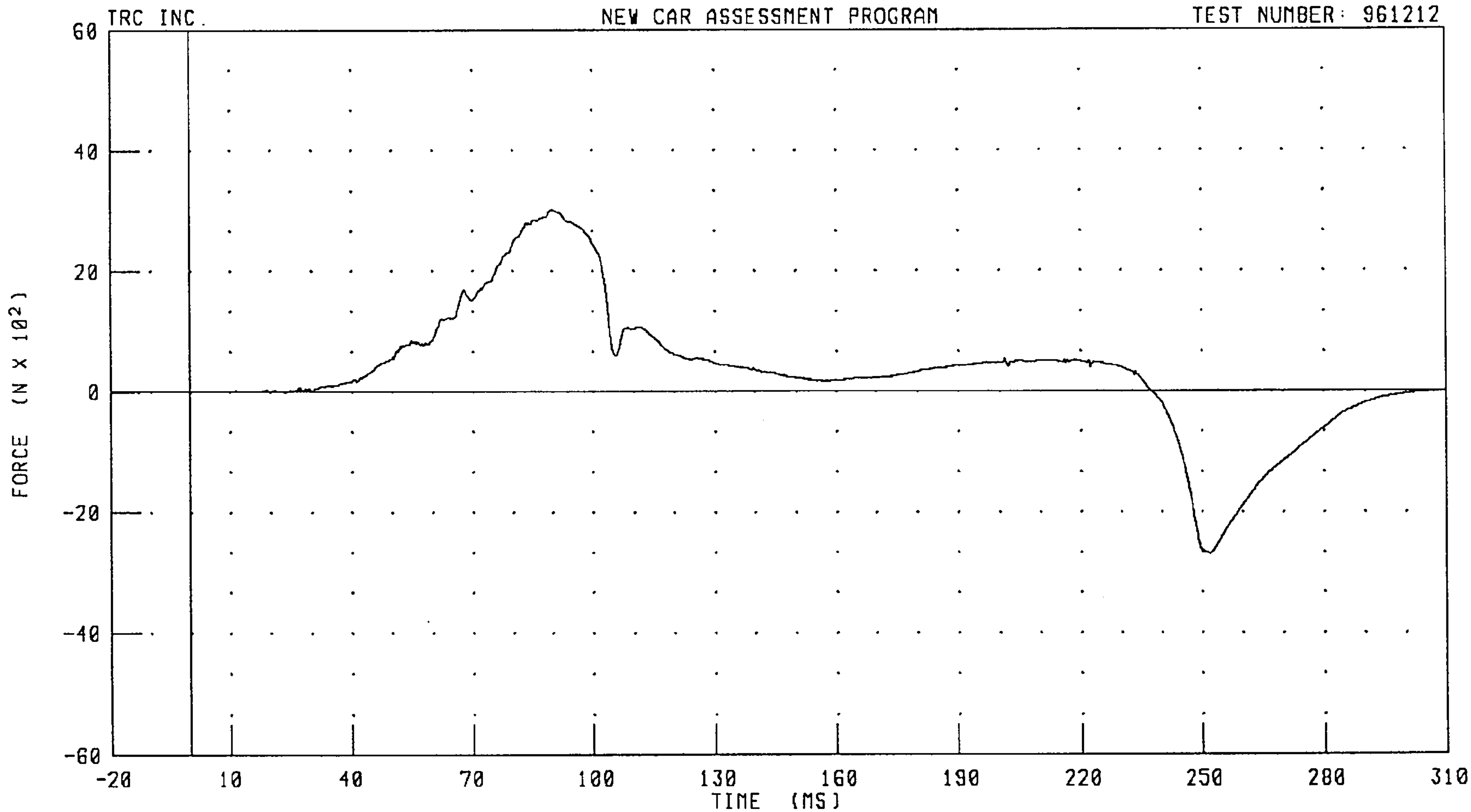
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK X-AXIS SHEAR FORCE
NEW CAR ASSESSMENT PROGRAM



CHANNEL: NEKXF2 FILTER: CH. CLASS 1000 PEAK DATA: 1604.51 N @ 106.24 MS; -832.83 N @ 250.96 MS


1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK Y-AXIS SHEAR FORCE
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 961212
FORCE (N X 10²)
60
40
20
0
-20
-40
-60
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: NEKYF2
FILTER: CH. CLASS 1000
PEAK DATA: 445.55 N @ 101.36 MS; -89.41 N @ 123.76 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK Z-AXIS AXIAL FORCE
NEW CAR ASSESSMENT PROGRAM



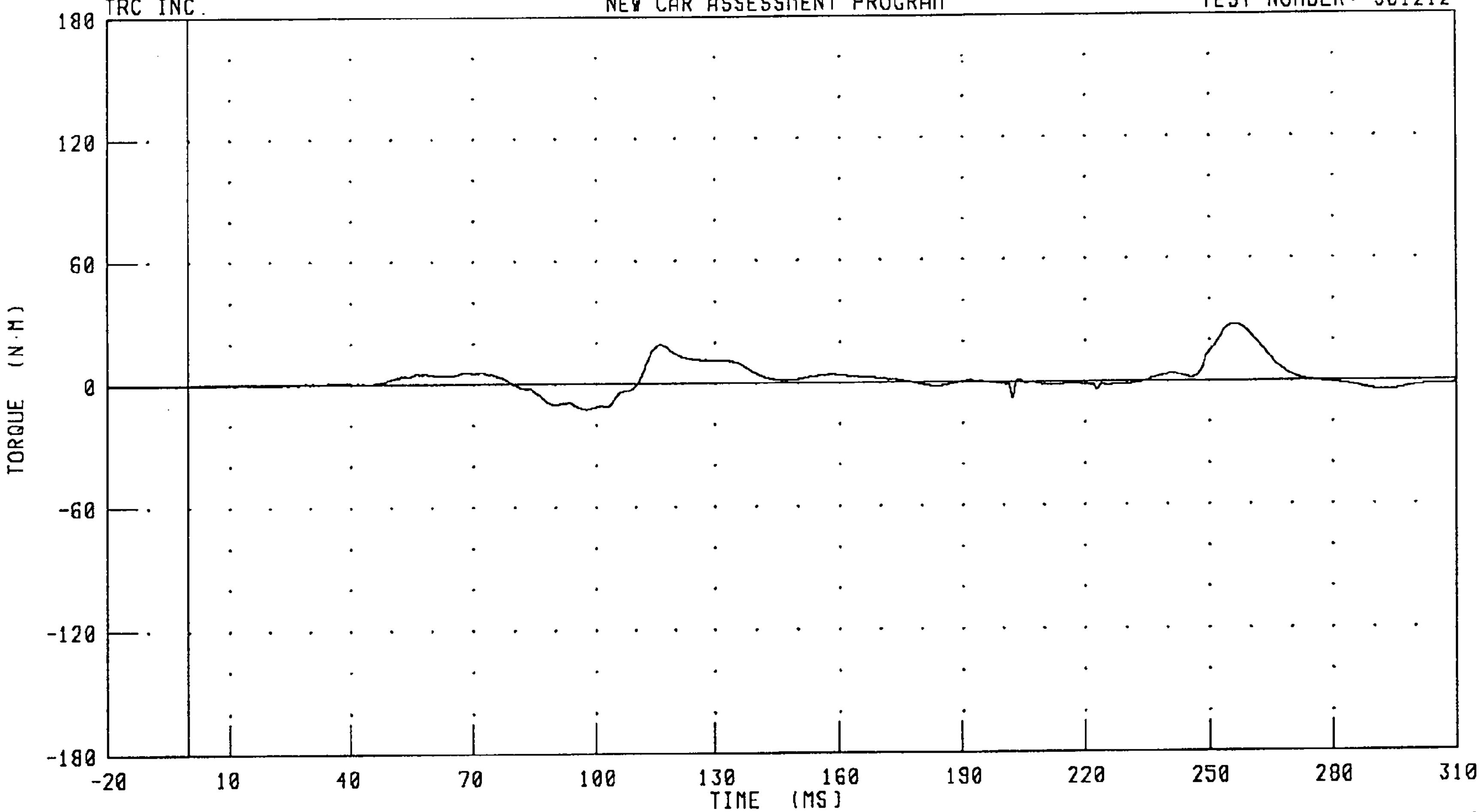
CHANNEL: NEKZF2   FILTER: CH. CLASS 1000   PEAK DATA: 3011.43 N @ 89.76 MS; -2701.87 N @ 252.08 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER

PASSENGER NECK MOMENT ABOUT X AXIS

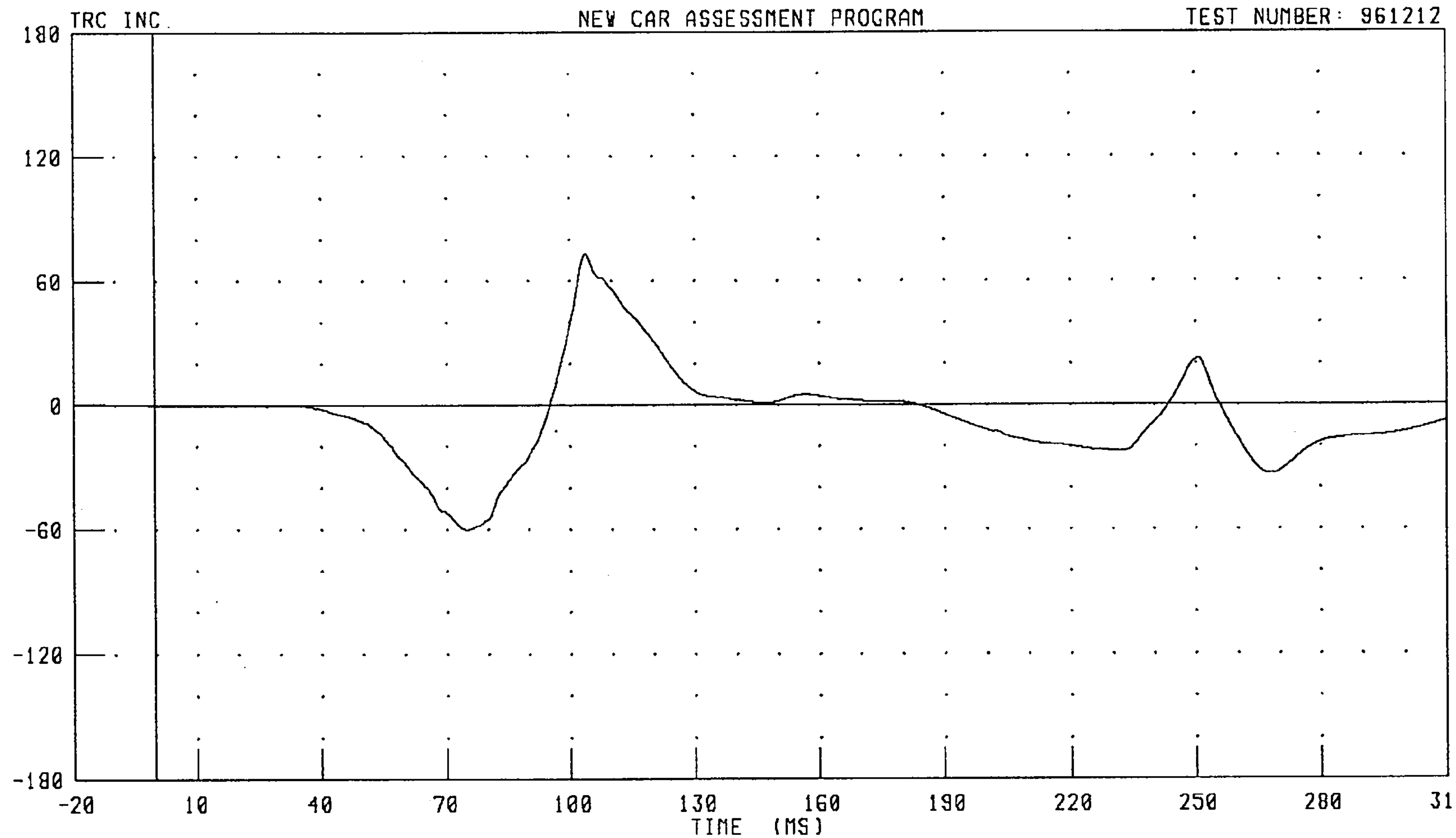
NEW CAR ASSESSMENT PROGRAM

TRC INC. TEST NUMBER: 961212

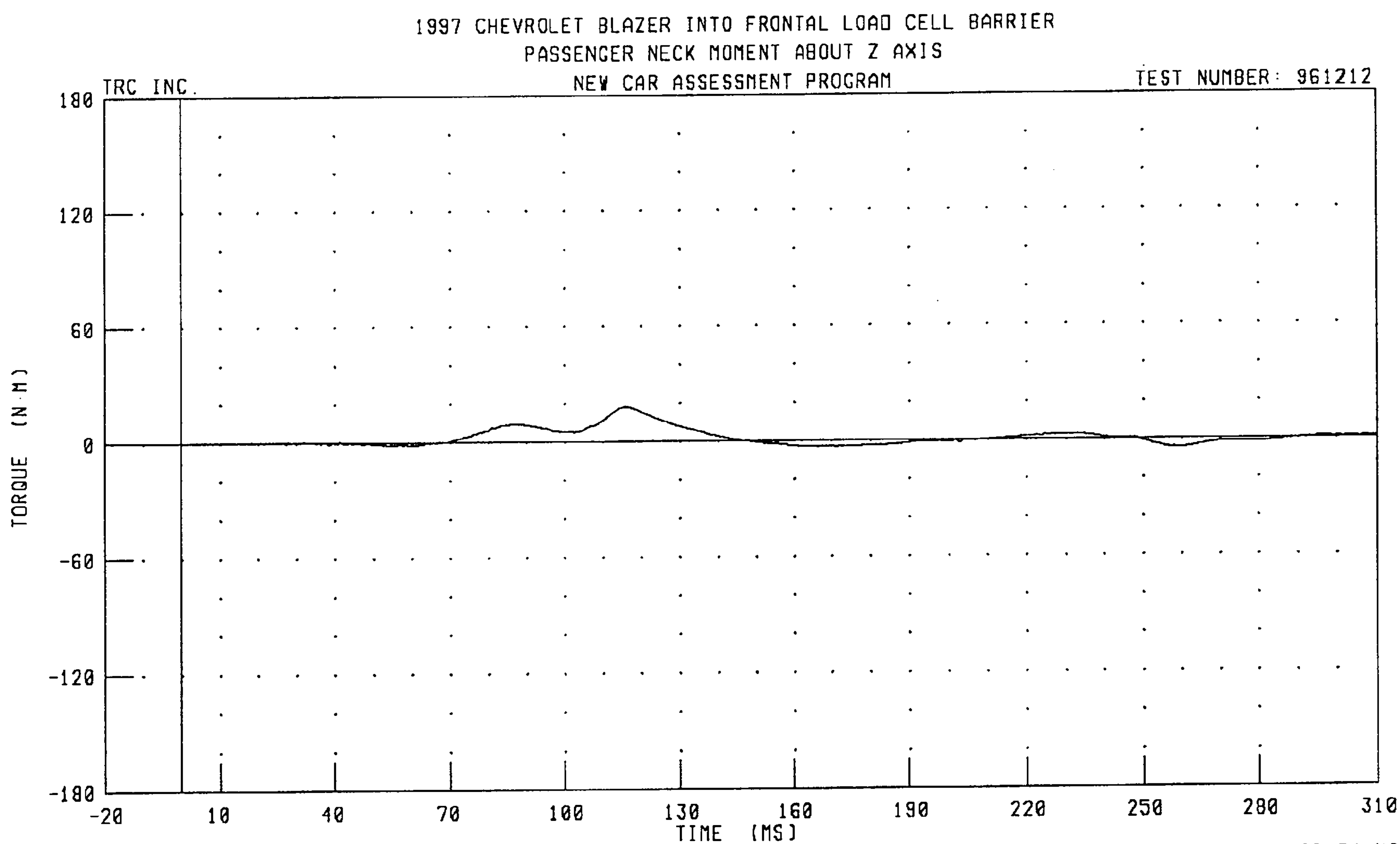


CHANNEL: NEKXM2 FILTER: CH. CLASS 600 PEAK DATA: 27.69 N·M @ 256.32 MS; -12.44 N·M @ 97.52 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER NECK MOMENT ABOUT Y AXIS
NEW CAR ASSESSMENT PROGRAM



CHANNEL: NEKYM2 FILTER: CH. CLASS 600 PEAK DATA: 73.26 N·M @ 104.00 MS; -60.34 N·M @ 75.04 MS

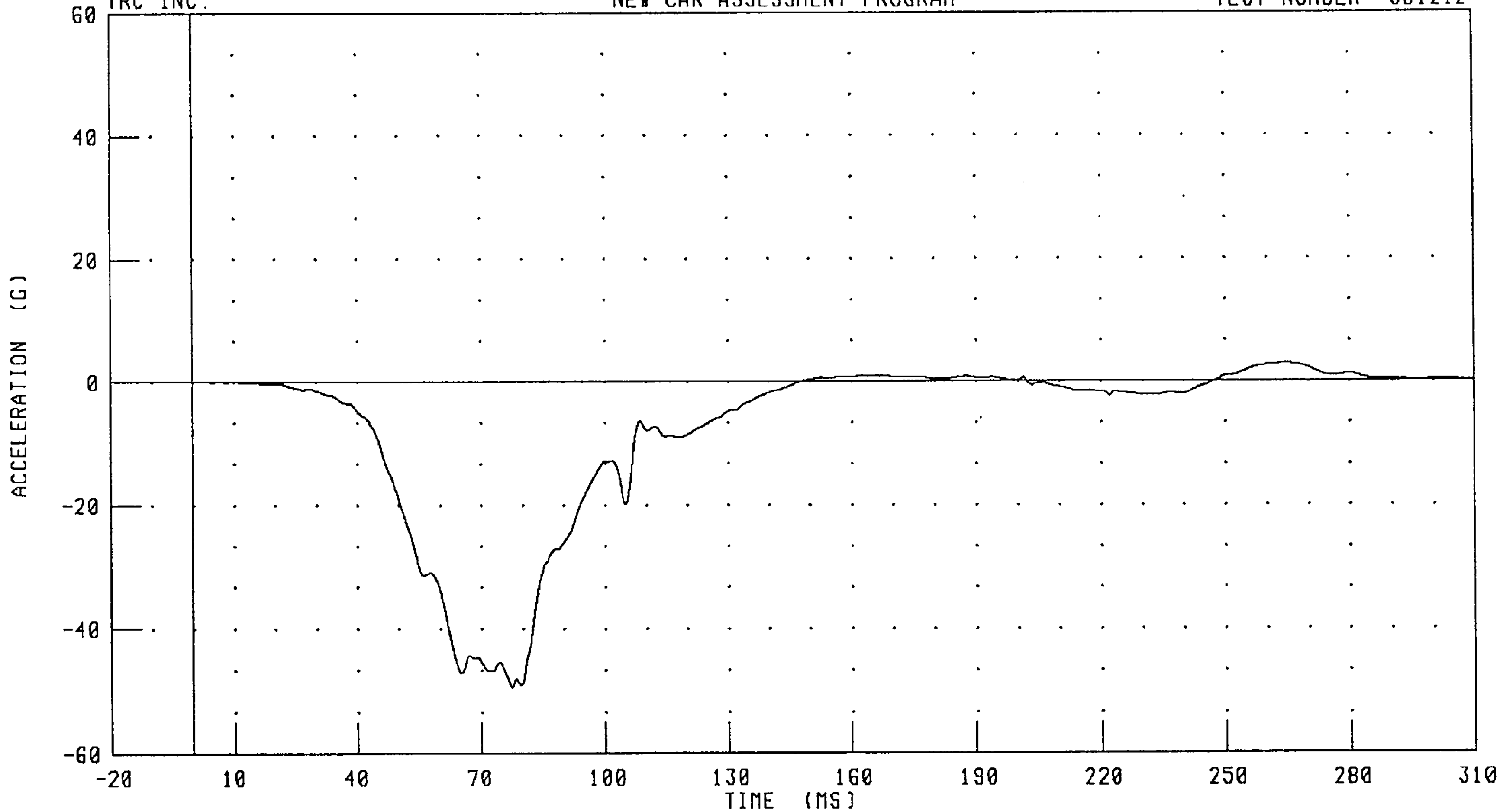


CHANNEL: NEKZM2   FILTER: CH. CLASS 600   PEAK DATA: 18.08 N·M @ 116.32 MS; -4.68 N·M @ 259.04 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TRC INC.

TEST NUMBER: 961212

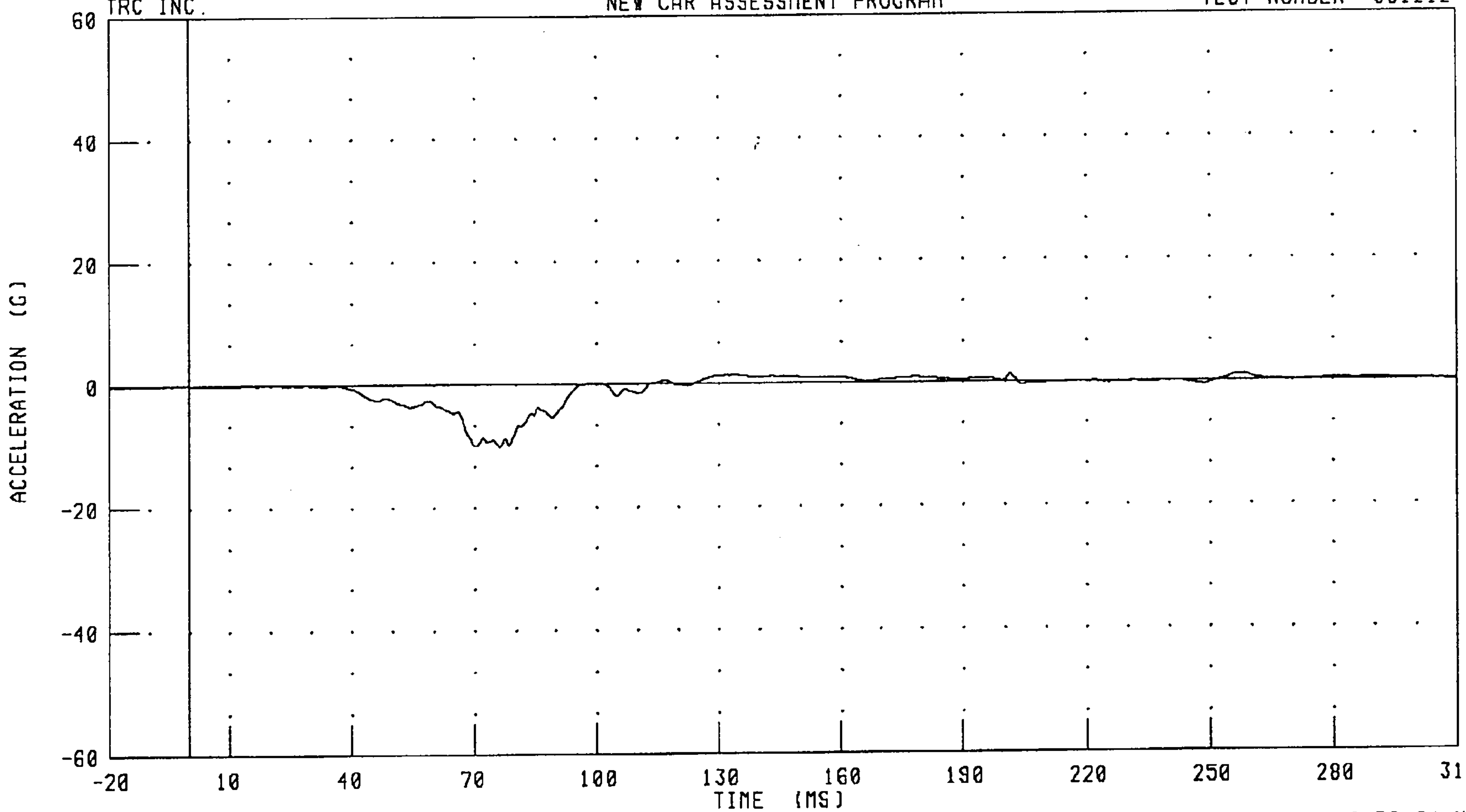


CHANNEL: CSTXG2 FILTER: CH. CLASS 180

PEAK DATA: 2.92 G @ 264.64 MS; -49.42 G @ 77.44 MS

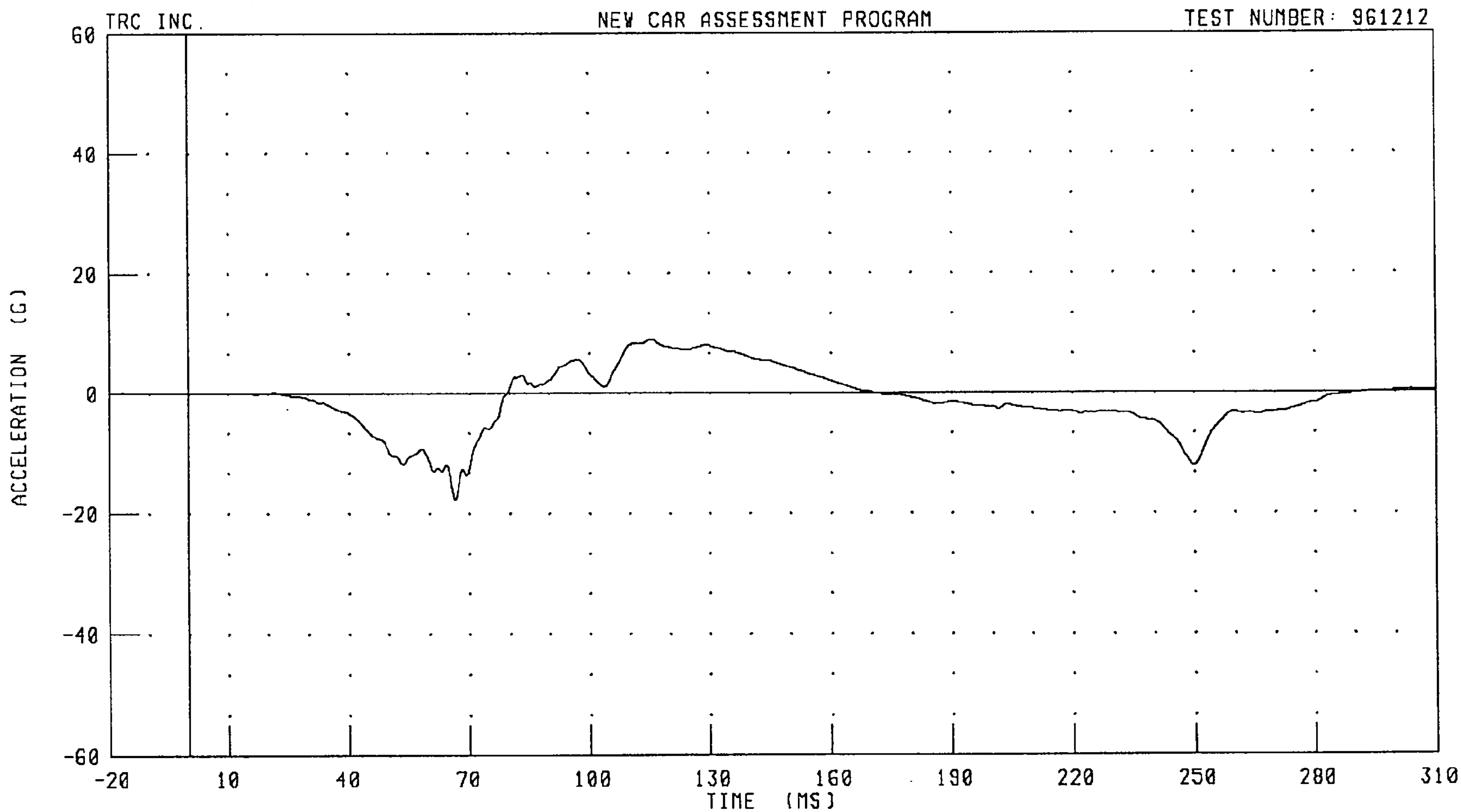
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Y-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TRC INC. TEST NUMBER: 961212



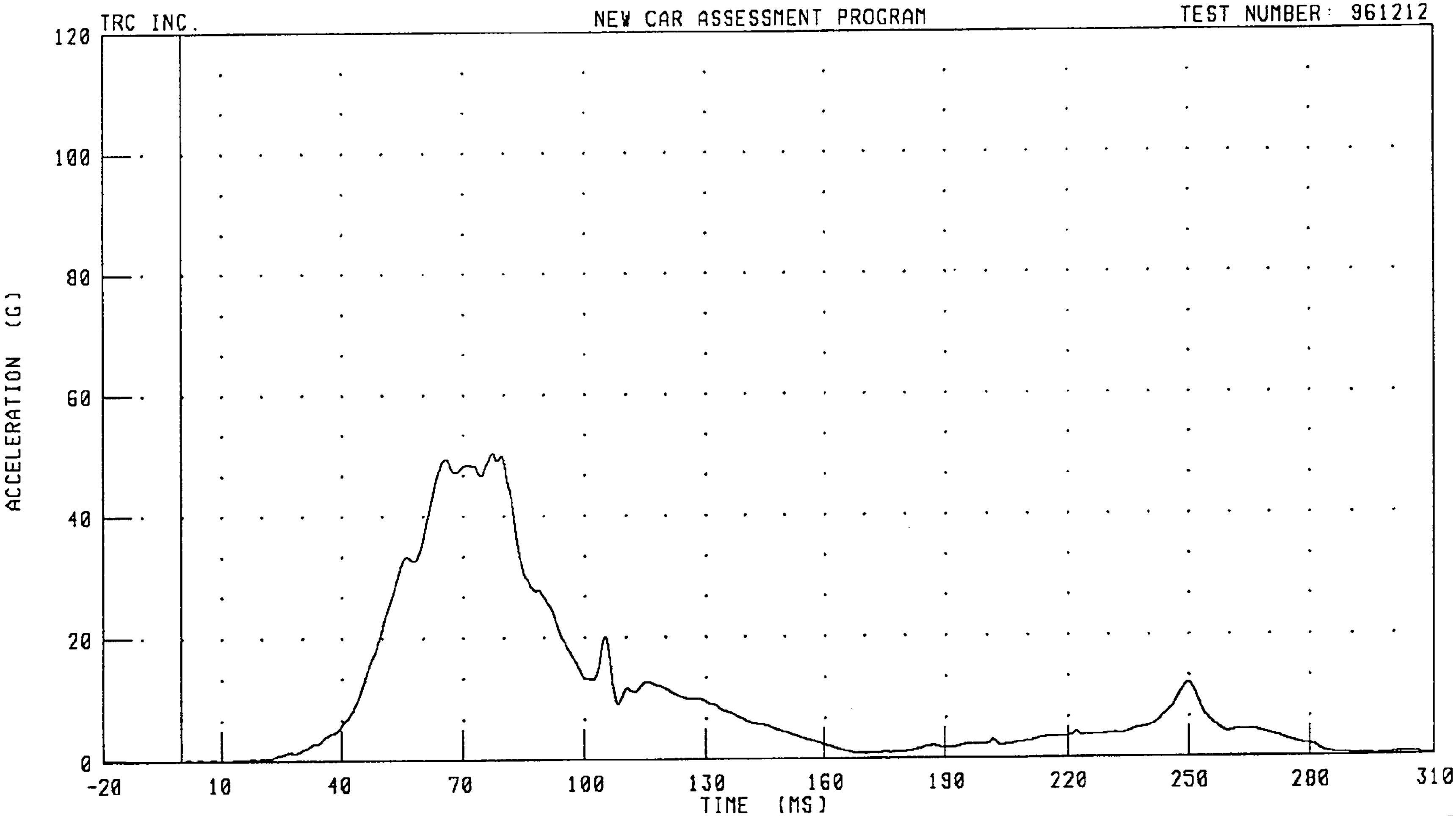
CHANNEL: CSTYG2 FILTER: CH. CLASS 180 PEAK DATA: 1.38 G @ 201.44 MS; -10.09 G @ 76.24 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Z-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM



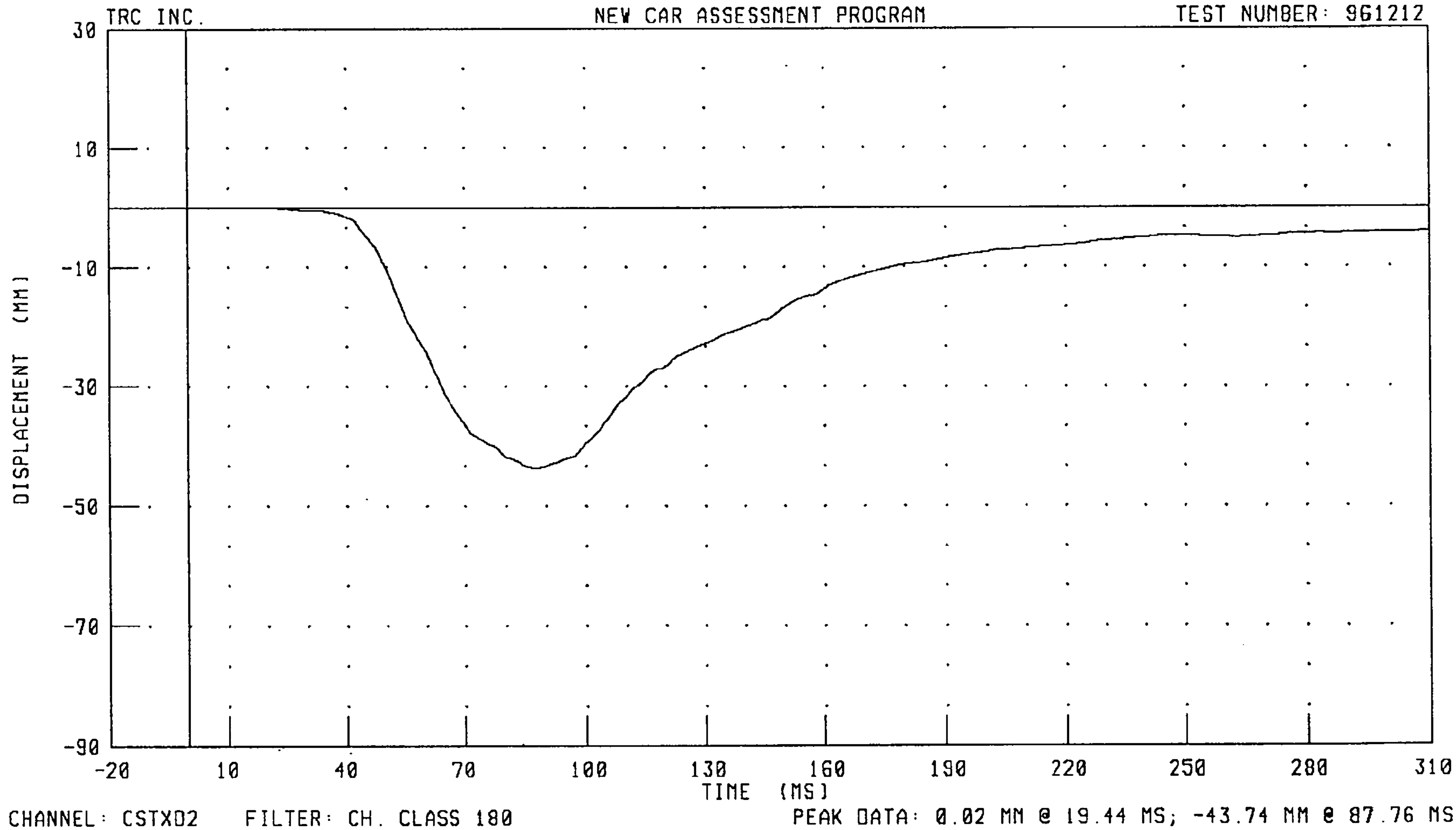
CHANNEL: CSTZG2 FILTER: CH. CLASS 180 PEAK DATA: 9.06 G @ 115.76 MS; -17.77 G @ 66.64 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST RESULTANT ACCELERATION
NEW CAR ASSESSMENT PROGRAM

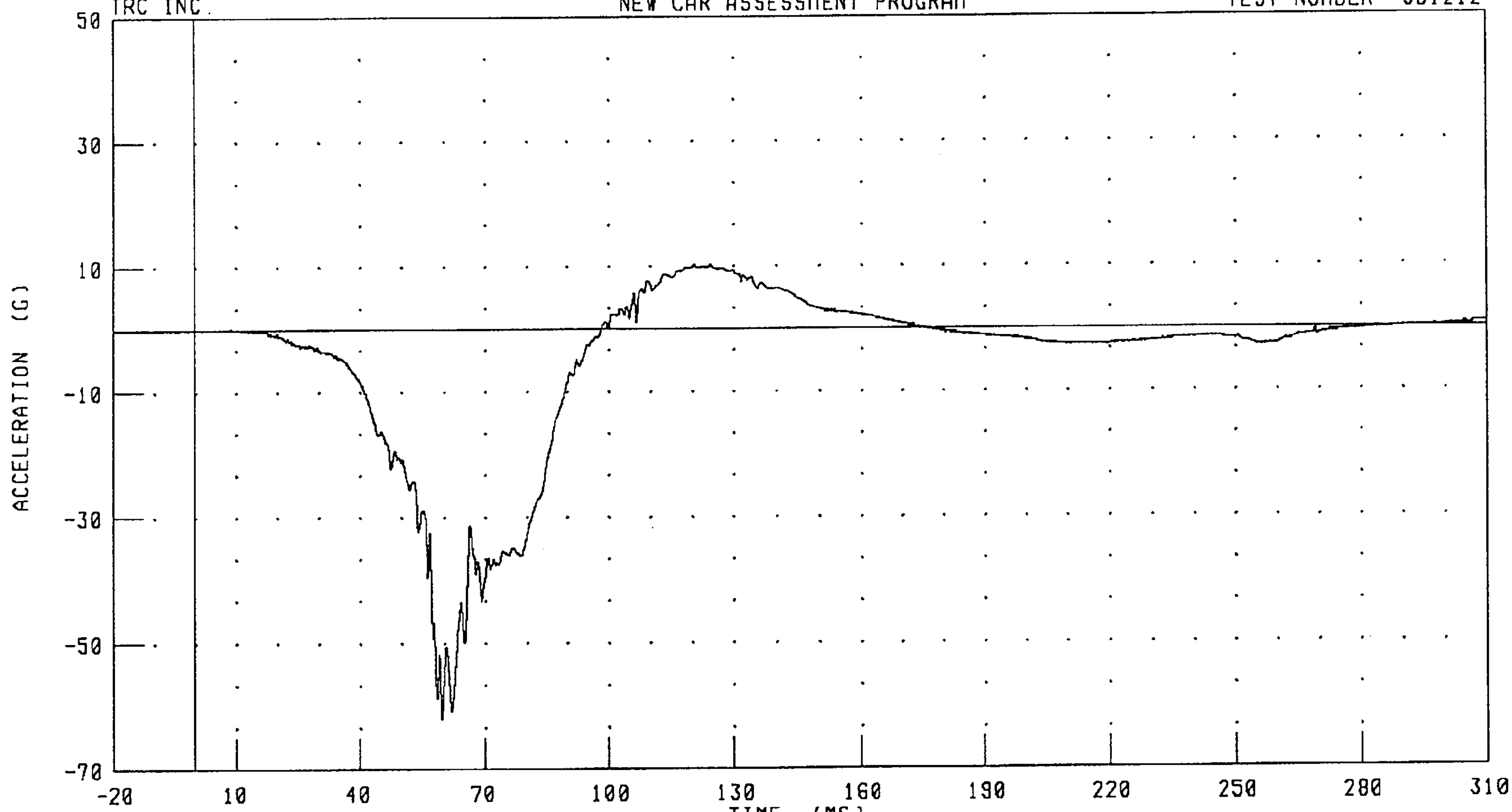


CHANNEL: CSTRG2 FILTER: CH. CLASS 180 PEAK DATA: 50.35 G @ 77.44 MS; 0.01 G @ -20.00 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST DEFLECTION
NEW CAR ASSESSMENT PROGRAM

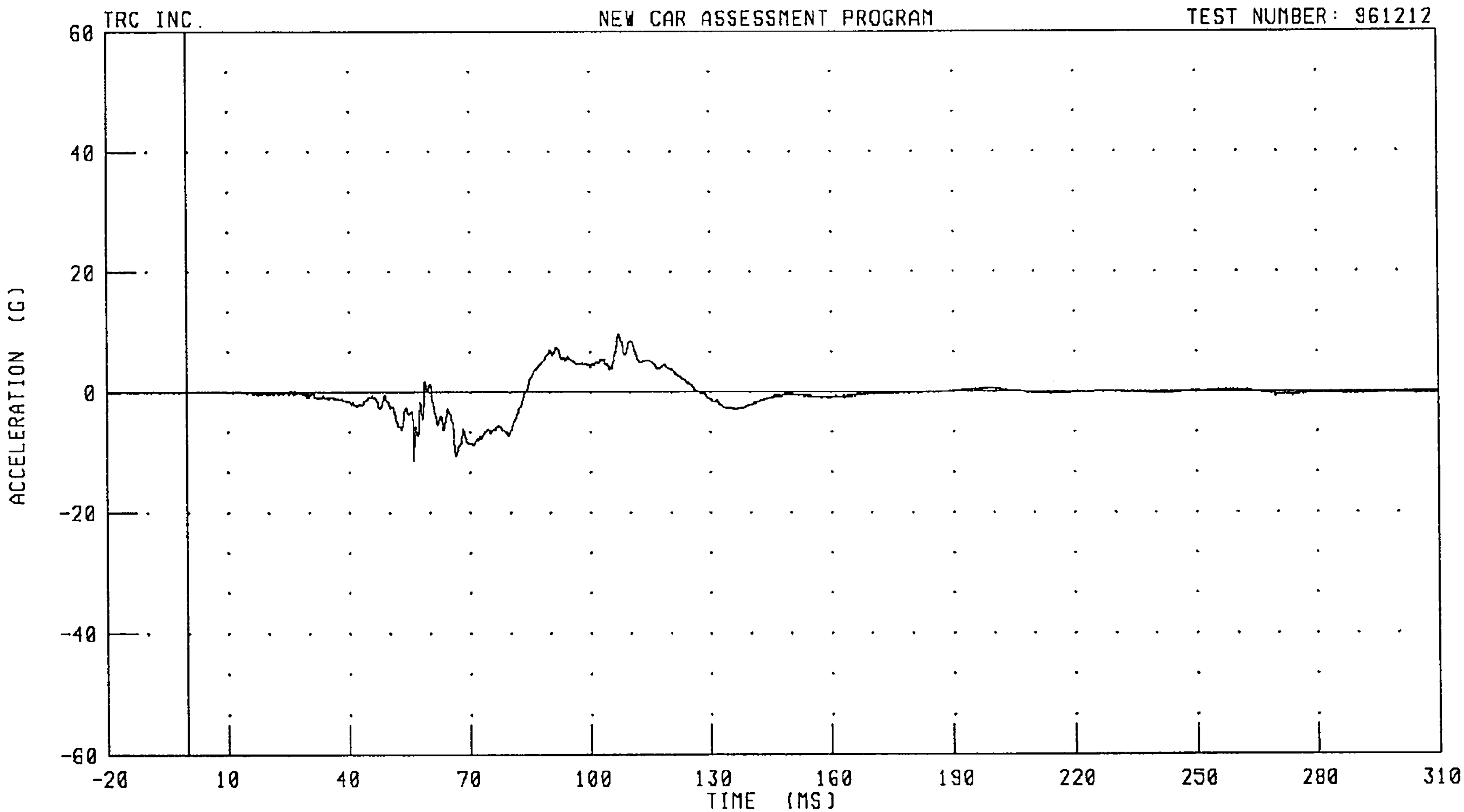


1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER PELVIS X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM



CHANNEL: PEVXG2 FILTER: CH. CLASS 1000 PEAK DATA: 10.26 G @ 120.48 MS; -62.02 G @ 59.44 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER PELVIS Y-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

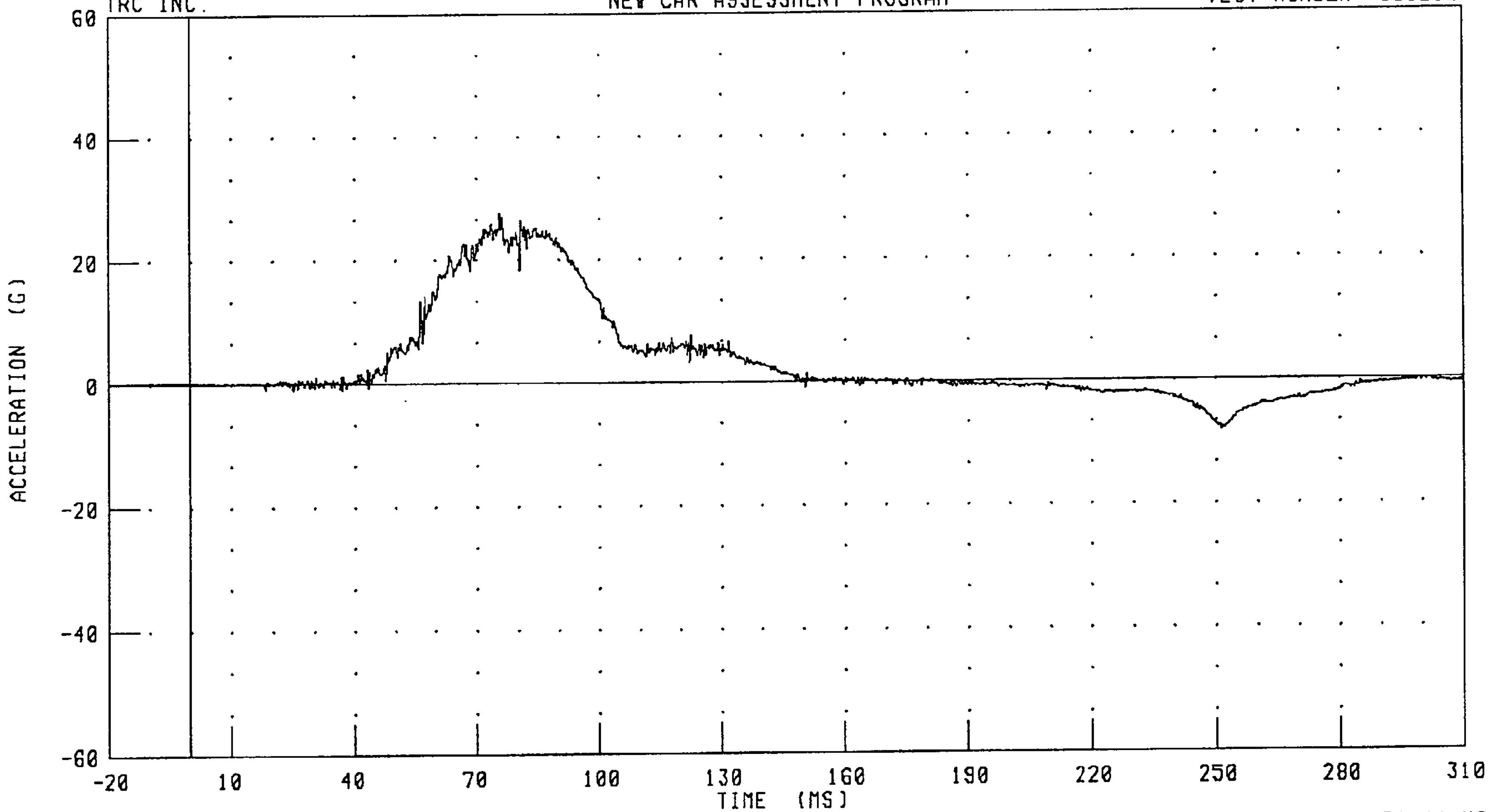


CHANNEL: PEVYG2 FILTER: CH. CLASS 1000 PEAK DATA: 9.63 G @ 107.12 MS; -11.58 G @ 56.24 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER PELVIS Z-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TRC INC.

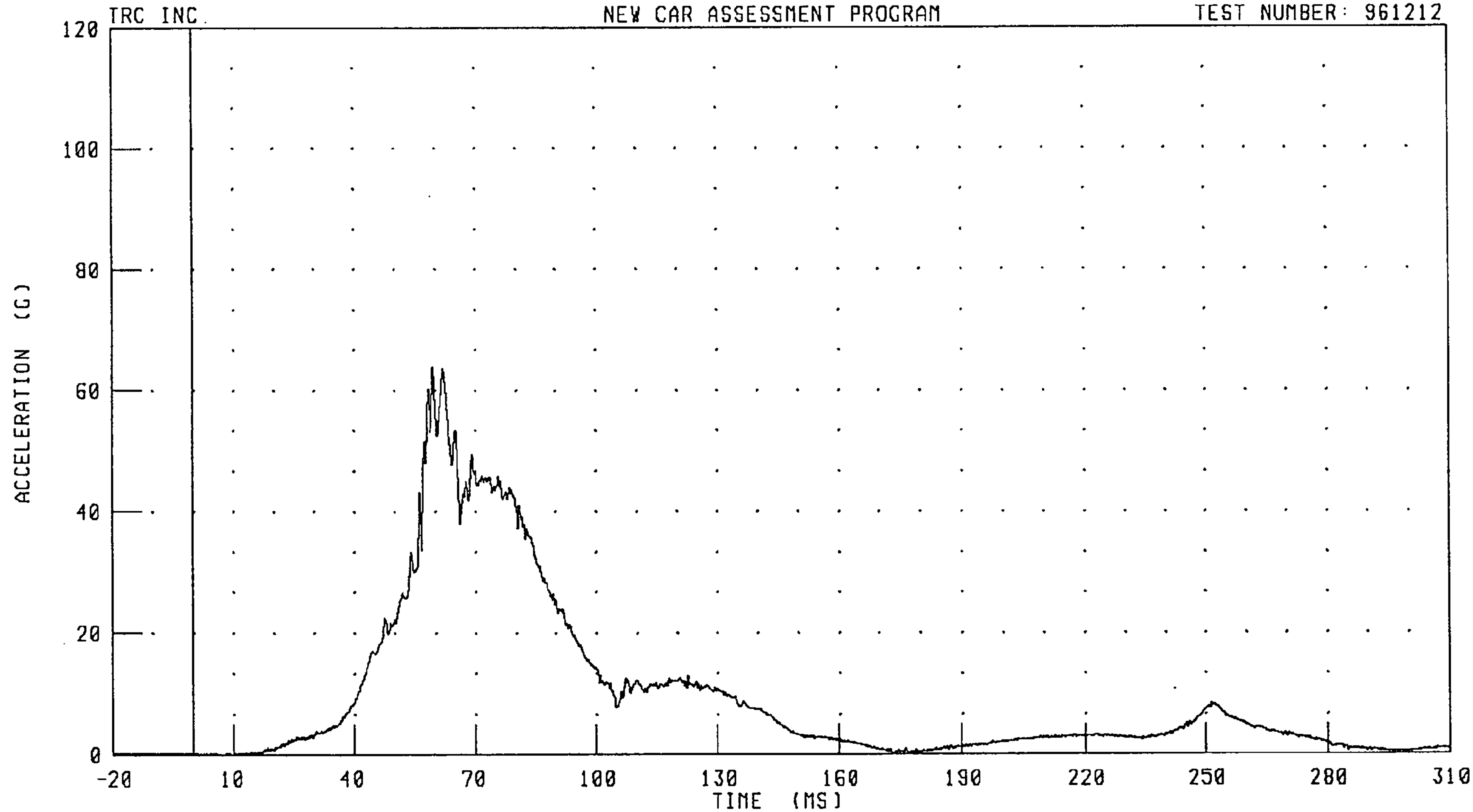
TEST NUMBER: 961212



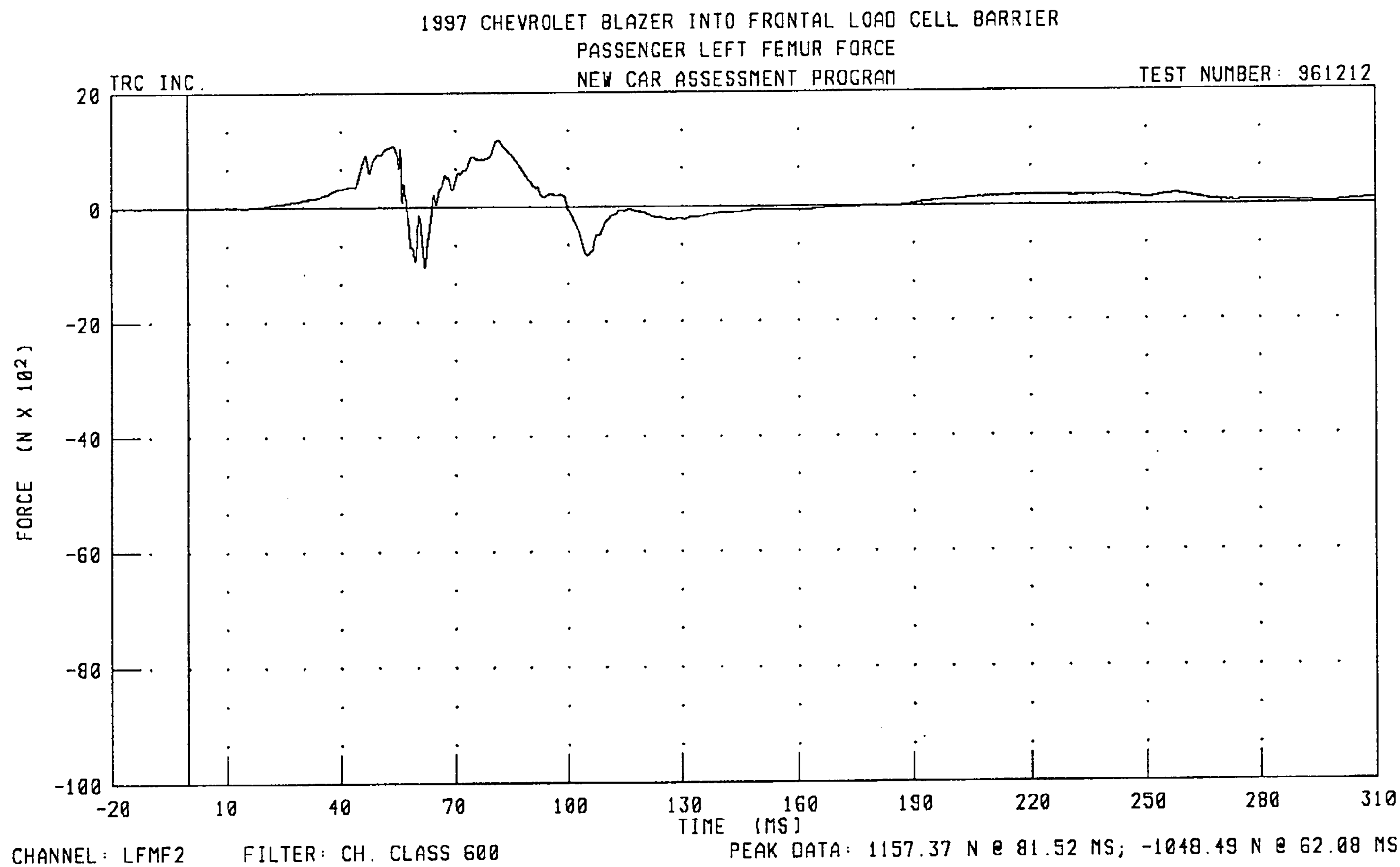
CHANNEL: PEVZG2 FILTER: CH. CLASS 1000

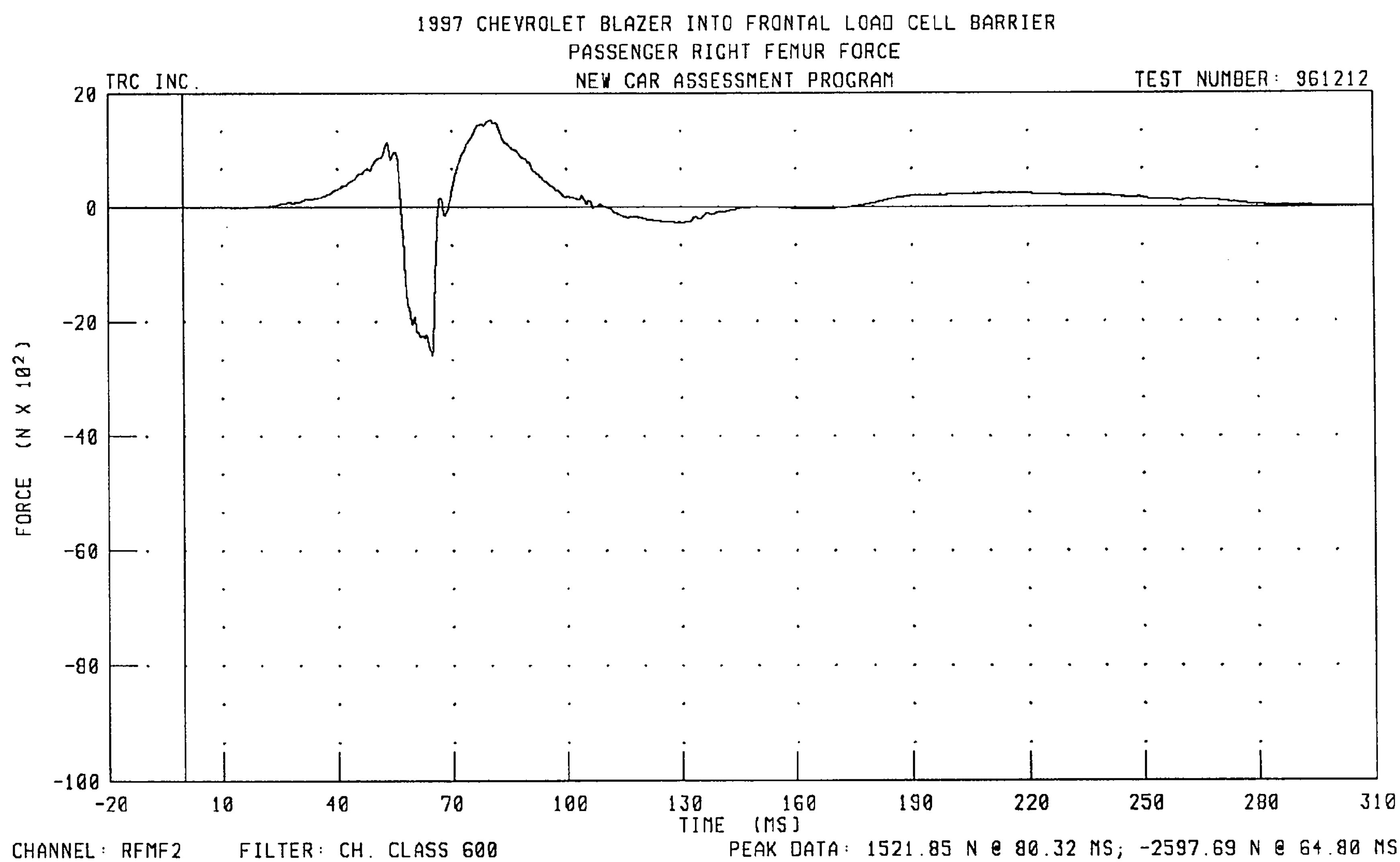
PEAK DATA: 27.66 G @ 75.68 MS; -8.09 G @ 251.44 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER PELVIS RESULTANT ACCELERATION
NEW CAR ASSESSMENT PROGRAM

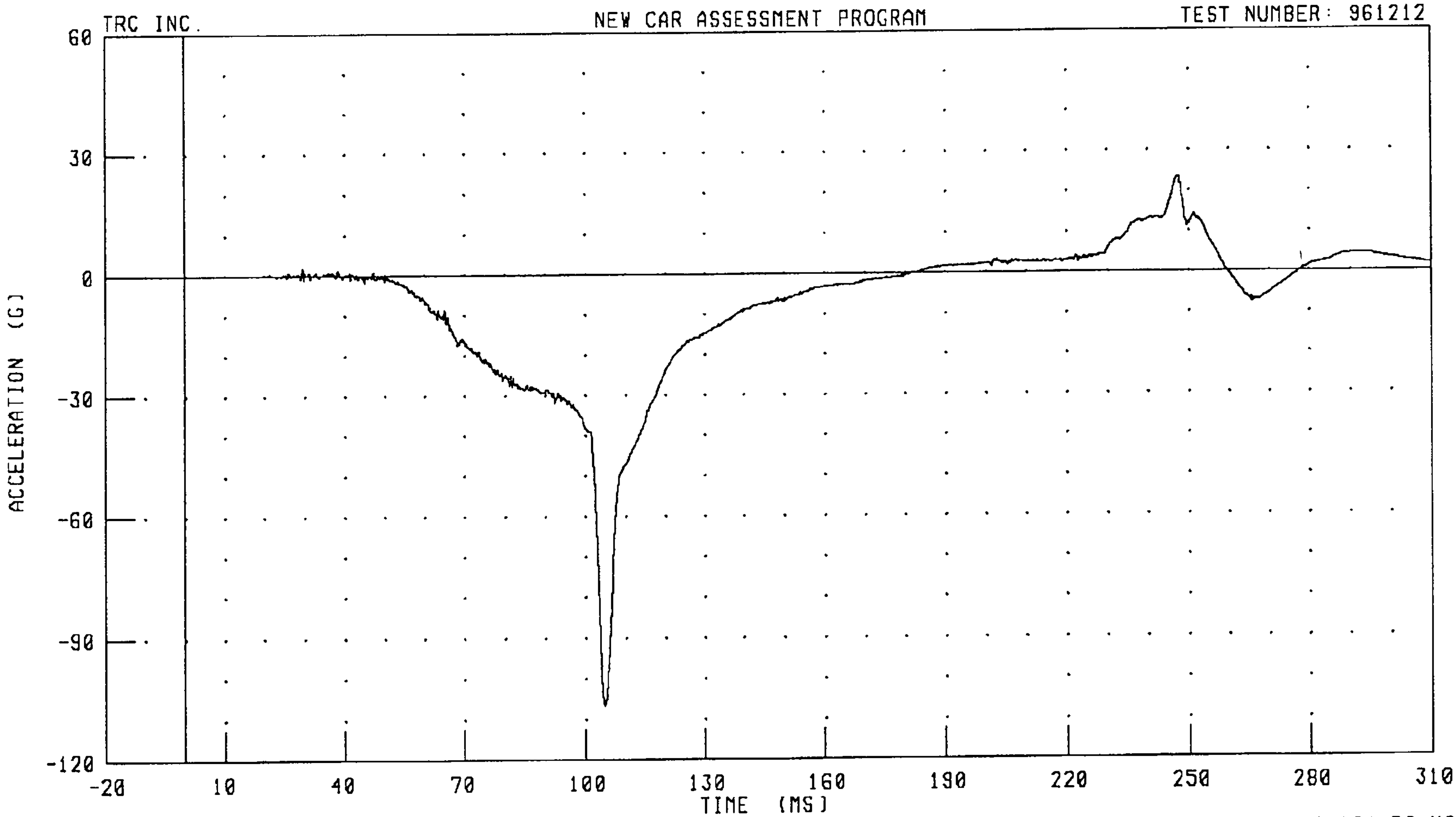


CHANNEL: PEVRG2 FILTER: CH. CLASS 1000 PEAK DATA: 63.83 G @ 59.52 MS; 0.04 G @ -11.60 MS


1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT FEMUR FORCE
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 961212
FORCE (N X 10²)
20
0
-20
-40
-60
-80
-100
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: LFMF2
FILTER: CH. CLASS 600
PEAK DATA: 1157.37 N @ 81.52 MS; -1048.49 N @ 62.08 MS


1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT FEMUR FORCE
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 961212
FORCE (N X 10²)
20
0
-20
-40
-60
-80
-100
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: RFMF2
FILTER: CH. CLASS 600
PEAK DATA: 1521.85 N @ 80.32 MS; -2597.69 N @ 64.80 MS

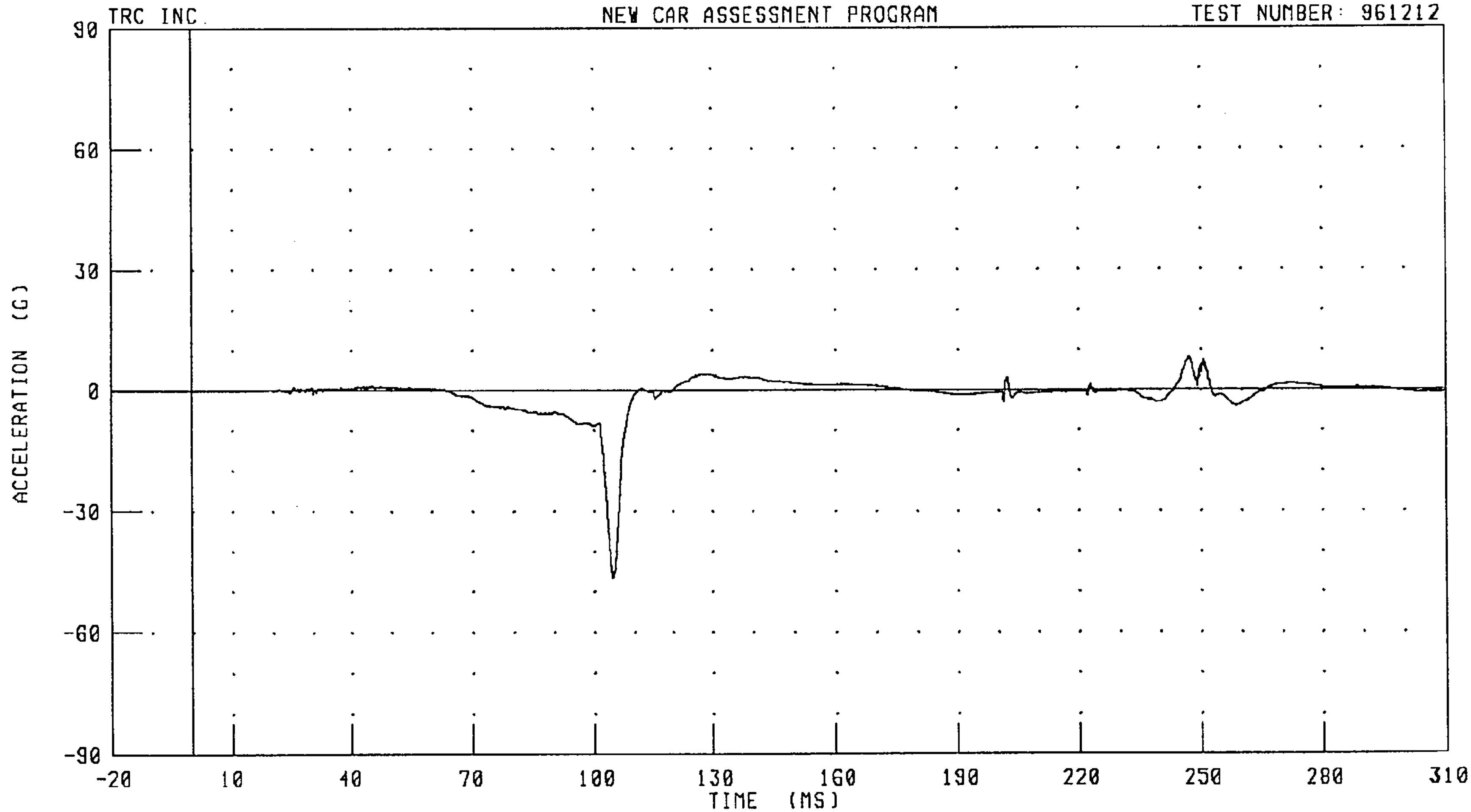
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD X-AXIS ACCELERATION - REDUNDANT
NEW CAR ASSESSMENT PROGRAM



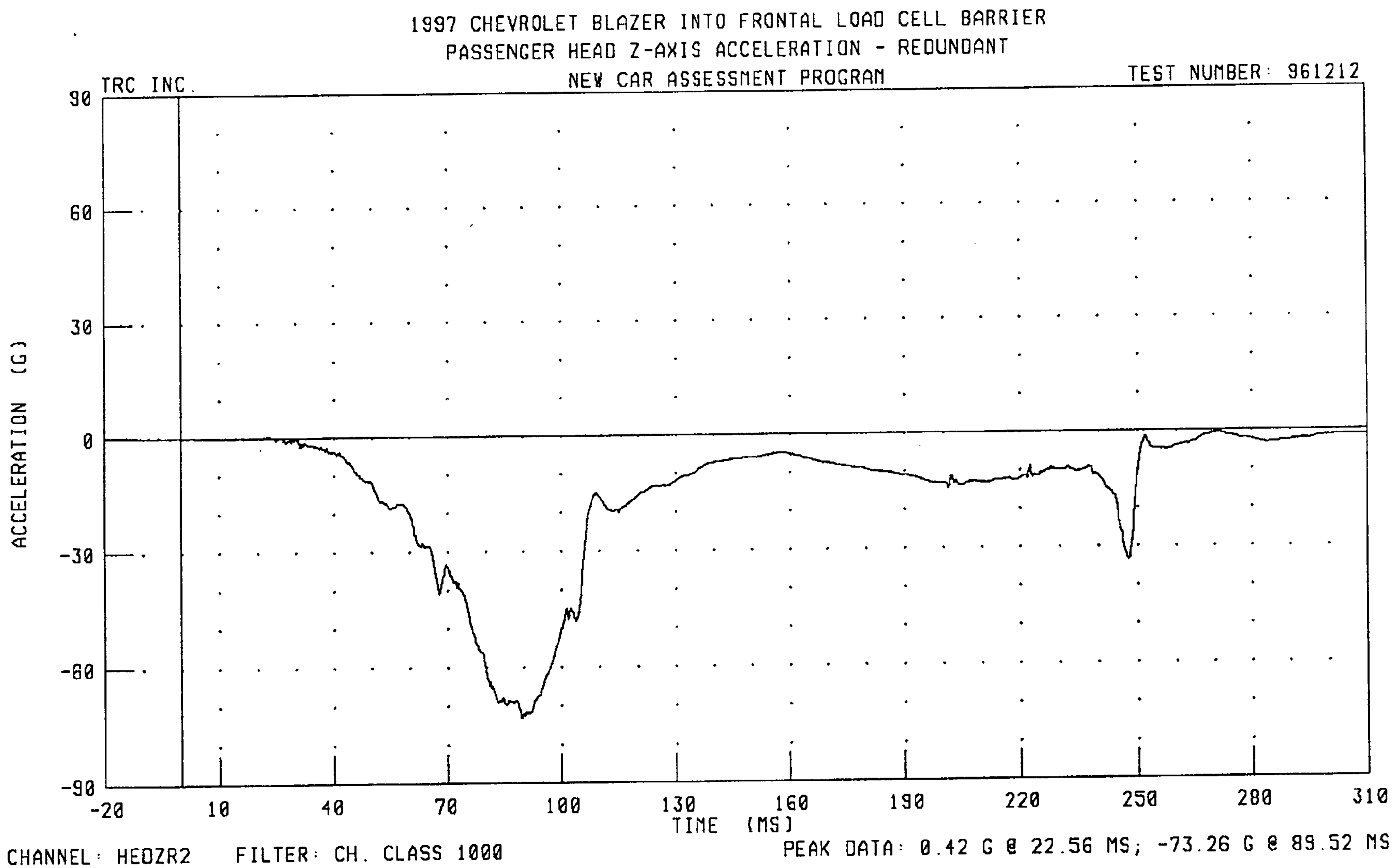
CHANNEL: HEDXR2 FILTER: CH. CLASS 1000

PEAK DATA: 23.45 G @ 247.28 MS; -106.62 G @ 104.72 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Y-AXIS ACCELERATION - REDUNDANT
NEW CAR ASSESSMENT PROGRAM

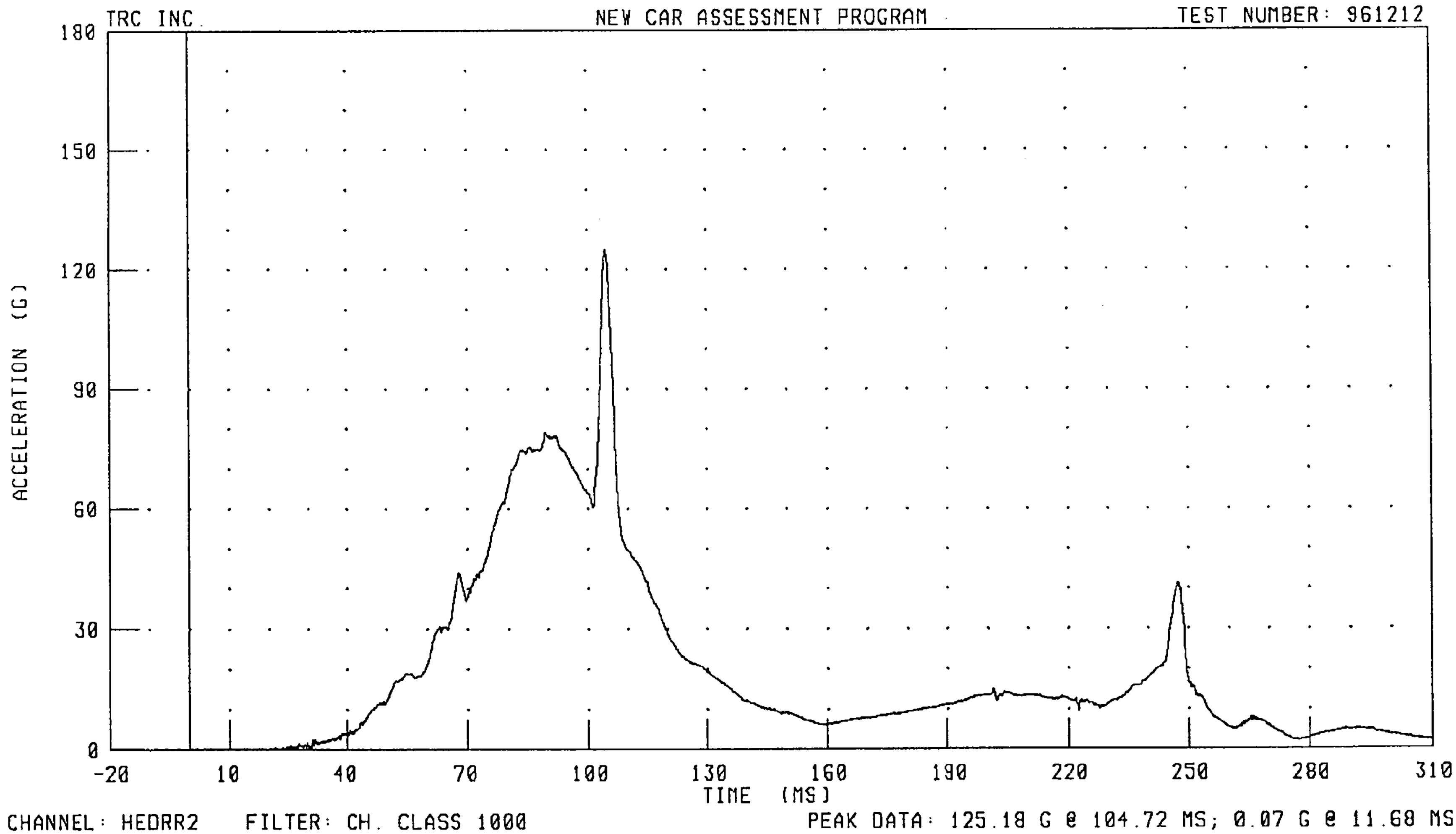


CHANNEL: HEDYR2 FILTER: CH. CLASS 1000 PEAK DATA: 8.10 G @ 247.12 MS; -46.54 G @ 104.72 MS

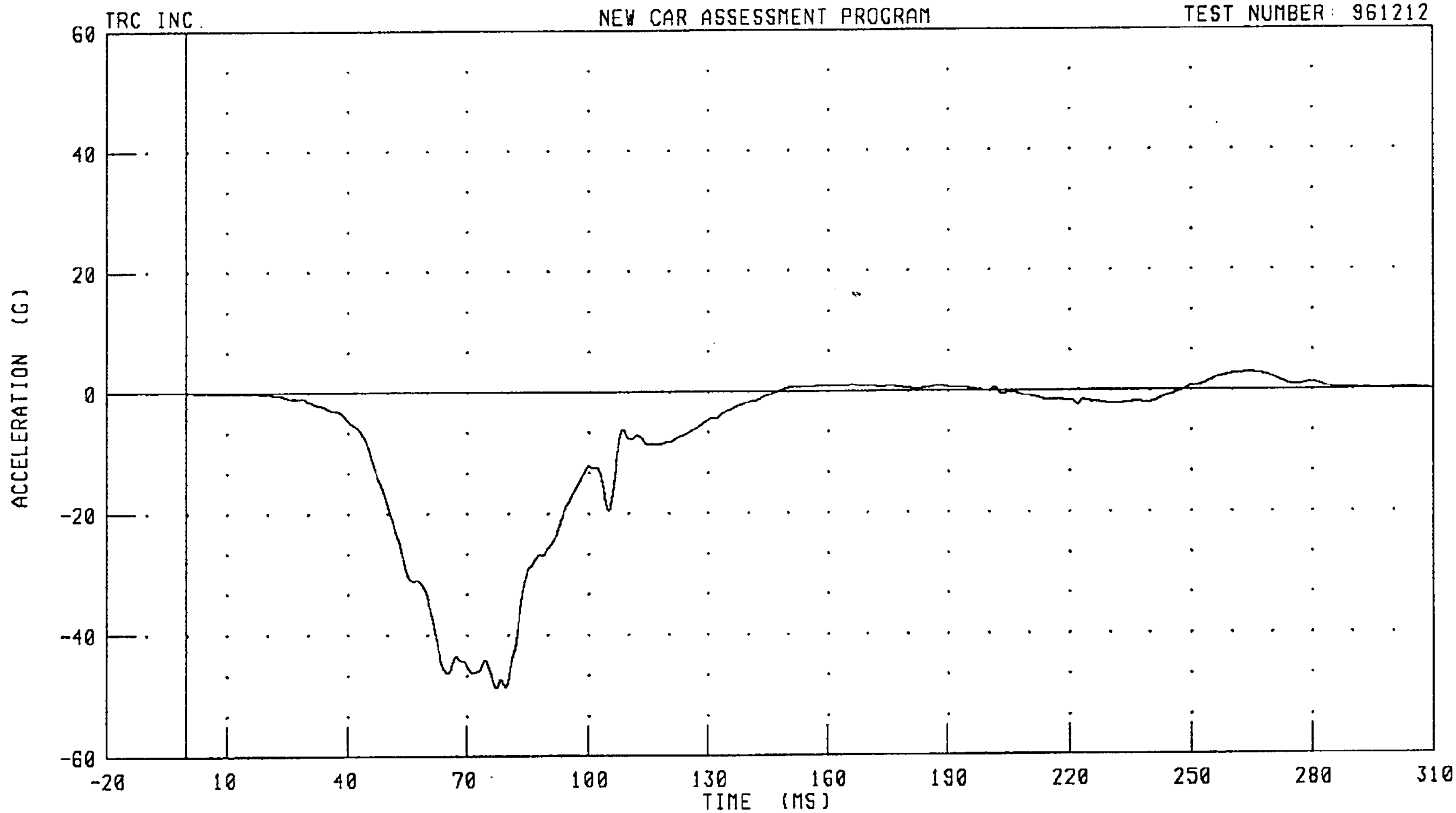


1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD Z-AXIS ACCELERATION - REDUNDANT
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 961212
ACCELERATION (G)
90
60
30
0
-30
-60
-90
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: HEDZR2
FILTER: CH. CLASS 1000
PEAK DATA: 0.42 G @ 22.56 MS; -73.26 G @ 89.52 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER HEAD RESULTANT ACCELERATION - REDUNDANT
NEW CAR ASSESSMENT PROGRAM



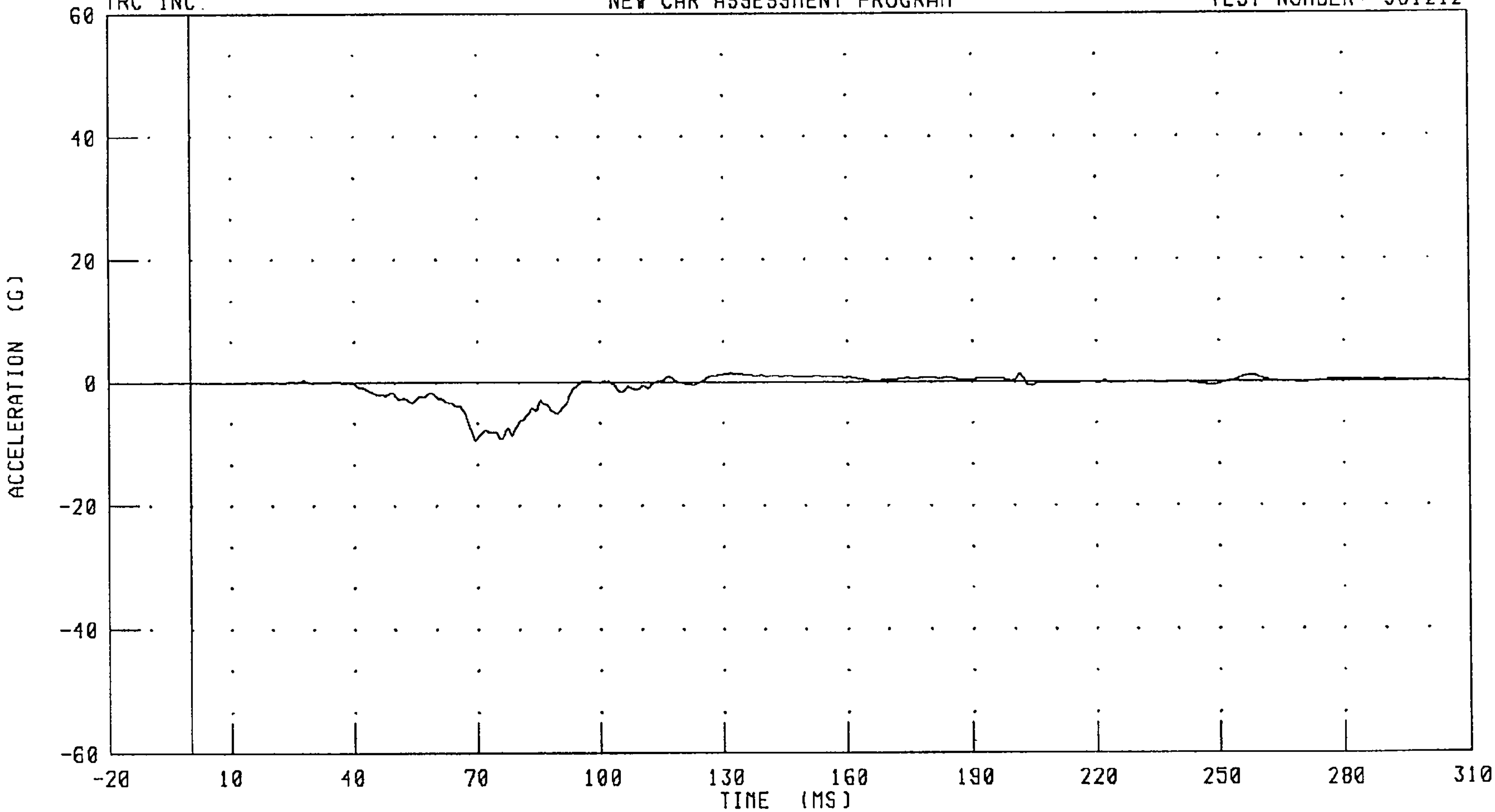
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST X-AXIS ACCELERATION - REDUNDANT
NEW CAR ASSESSMENT PROGRAM



CHANNEL: CSTXR2 FILTER: CH. CLASS 180 PEAK DATA: 2.90 G @ 264.64 MS; -48.72 G @ 77.36 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Y-AXIS ACCELERATION - REDUNDANT
NEW CAR ASSESSMENT PROGRAM

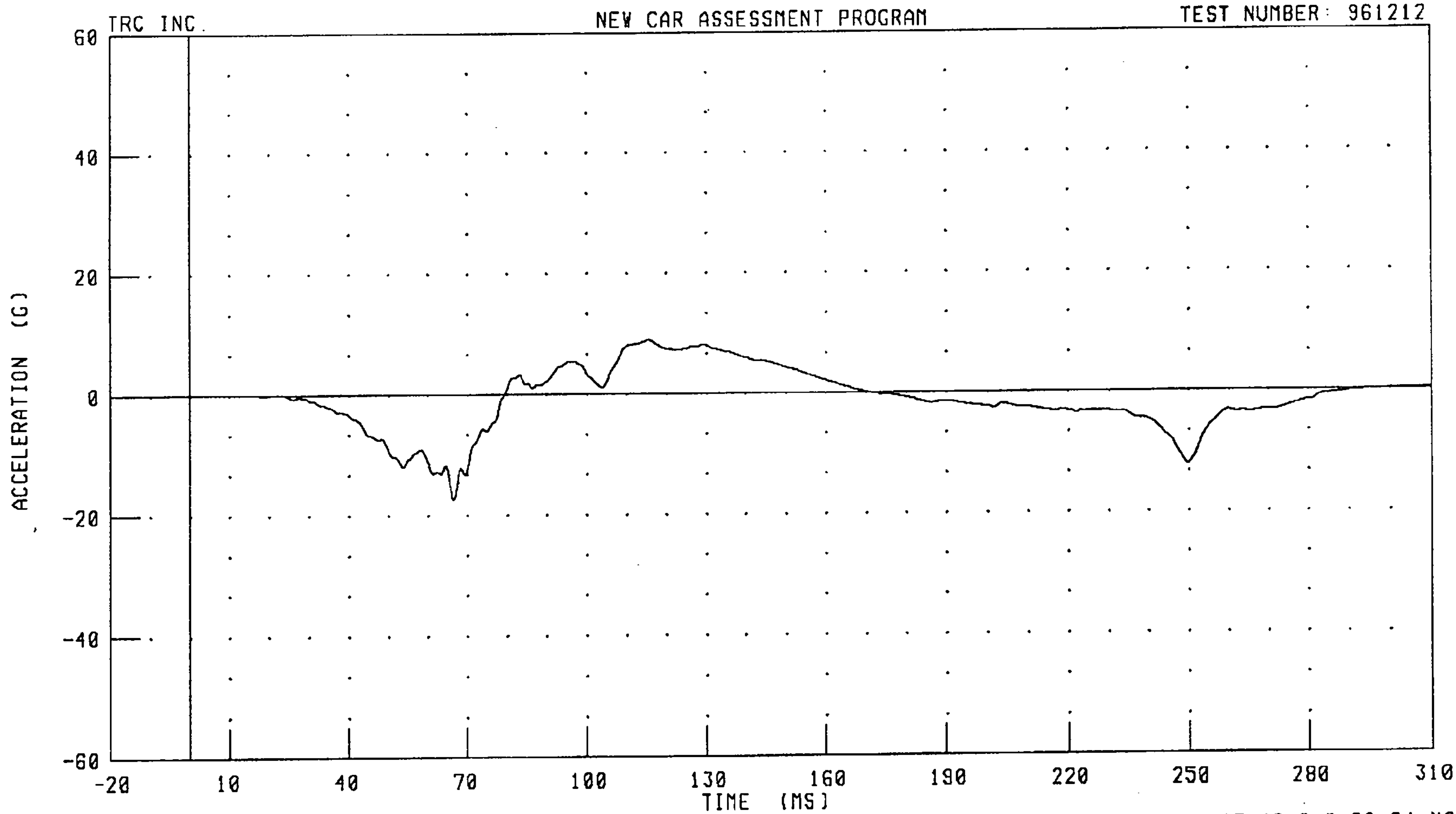
TRC INC. TEST NUMBER: 961212



CHANNEL: CSTYR2 FILTER: CH. CLASS 180 PEAK DATA: 1.46 G @ 131.92 MS; -9.42 G @ 69.60 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST Z-AXIS ACCELERATION - REDUNDANT
NEW CAR ASSESSMENT PROGRAM

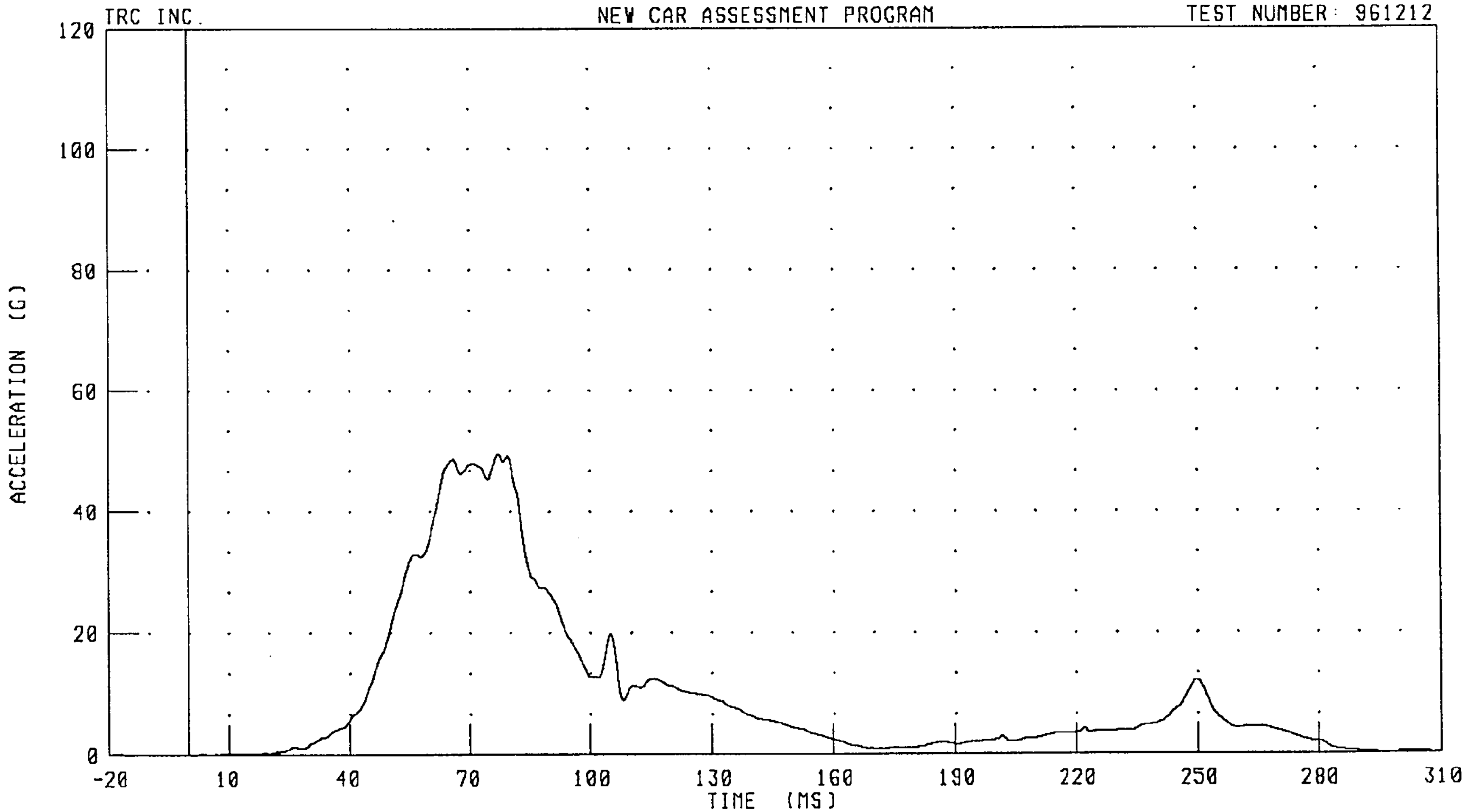
TEST NUMBER: 961212



CHANNEL: CSTZR2 FILTER: CH. CLASS 180

PEAK DATA: 8.94 G @ 115.68 MS; -17.40 G @ 66.64 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER CHEST RESULTANT ACCELERATION - REDUNDANT
NEW CAR ASSESSMENT PROGRAM

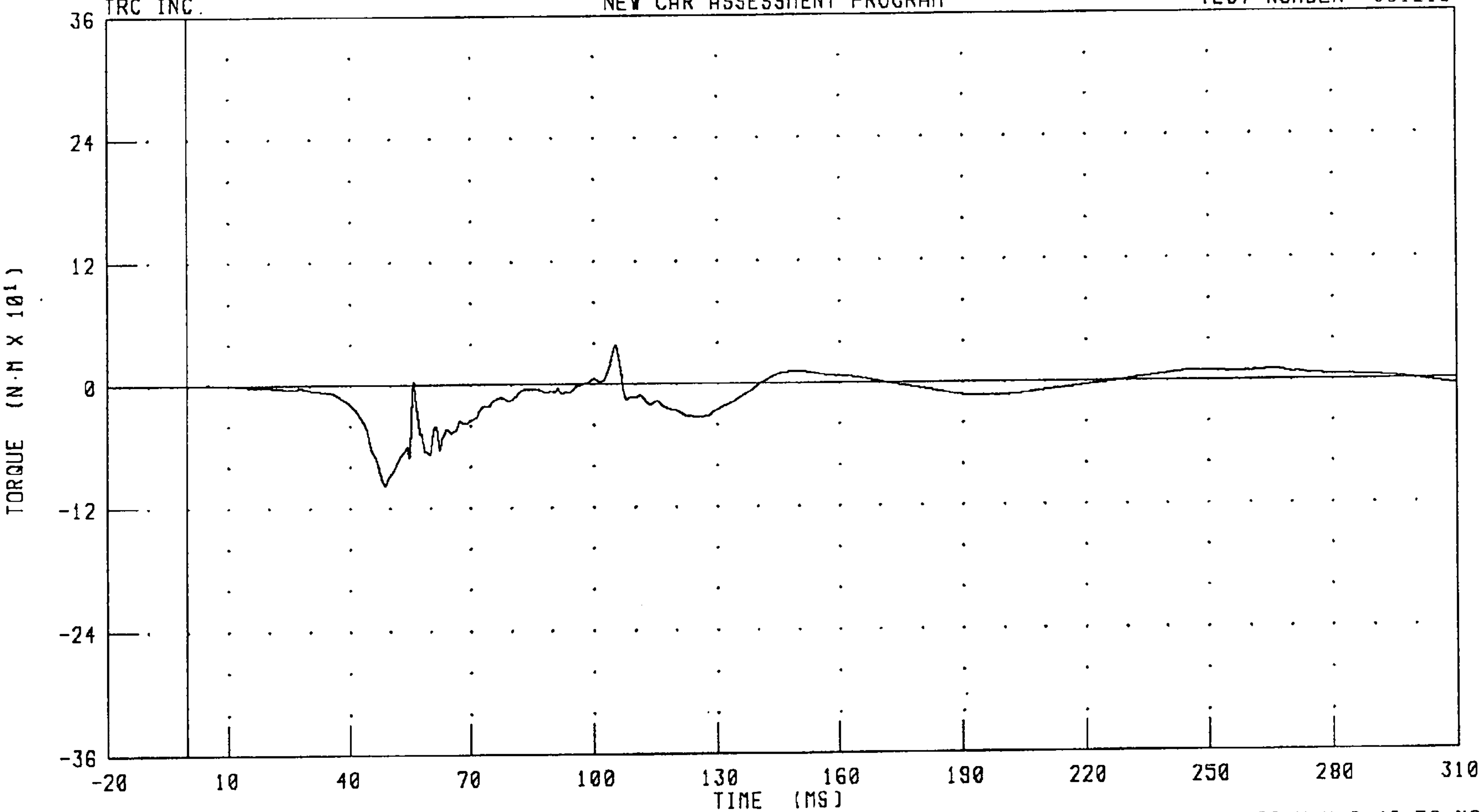


CHANNEL: CSTRR2 FILTER: CH. CLASS 180 PEAK DATA: 49.46 G @ 77.28 MS; 0.01 G @ -20.00 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT UPPER TIBIA MOMENT ABOUT X AXIS
NEW CAR ASSESSMENT PROGRAM

TRC INC.

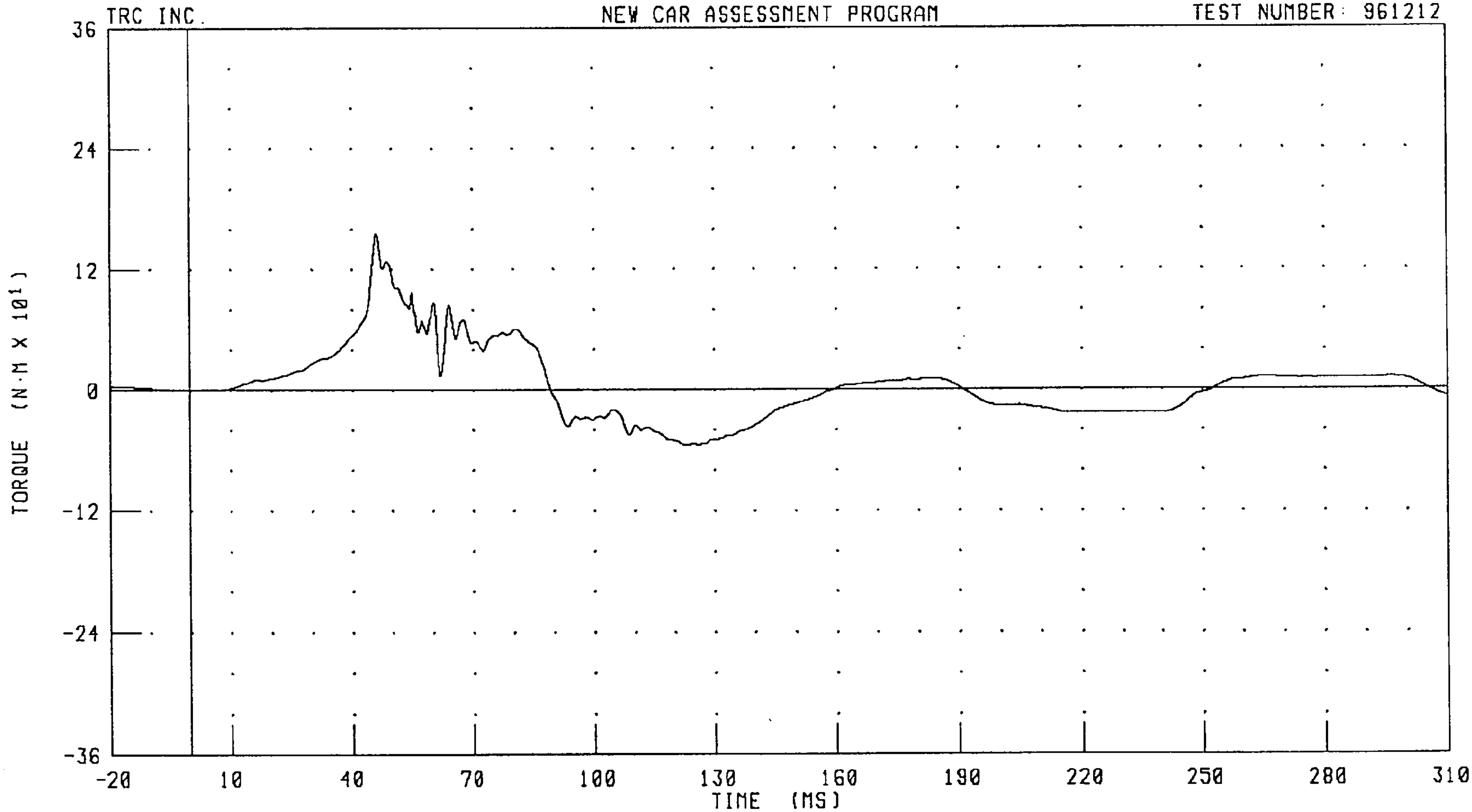
TEST NUMBER 961212



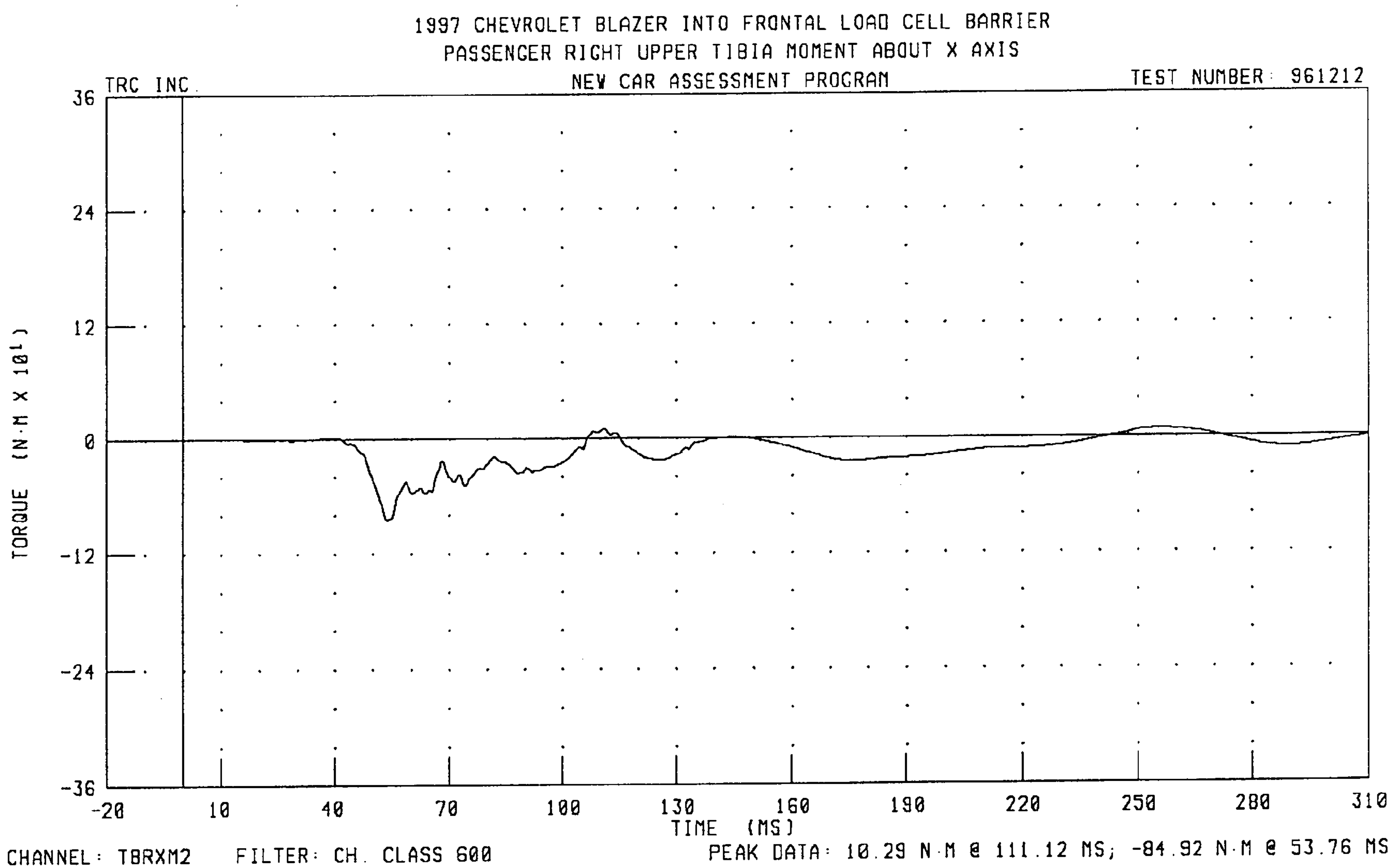
CHANNEL: TBLXM2   FILTER: CH. CLASS 600

PEAK DATA: 38.20 N·M @ 105.28 MS; -98.90 N·M @ 48.72 MS

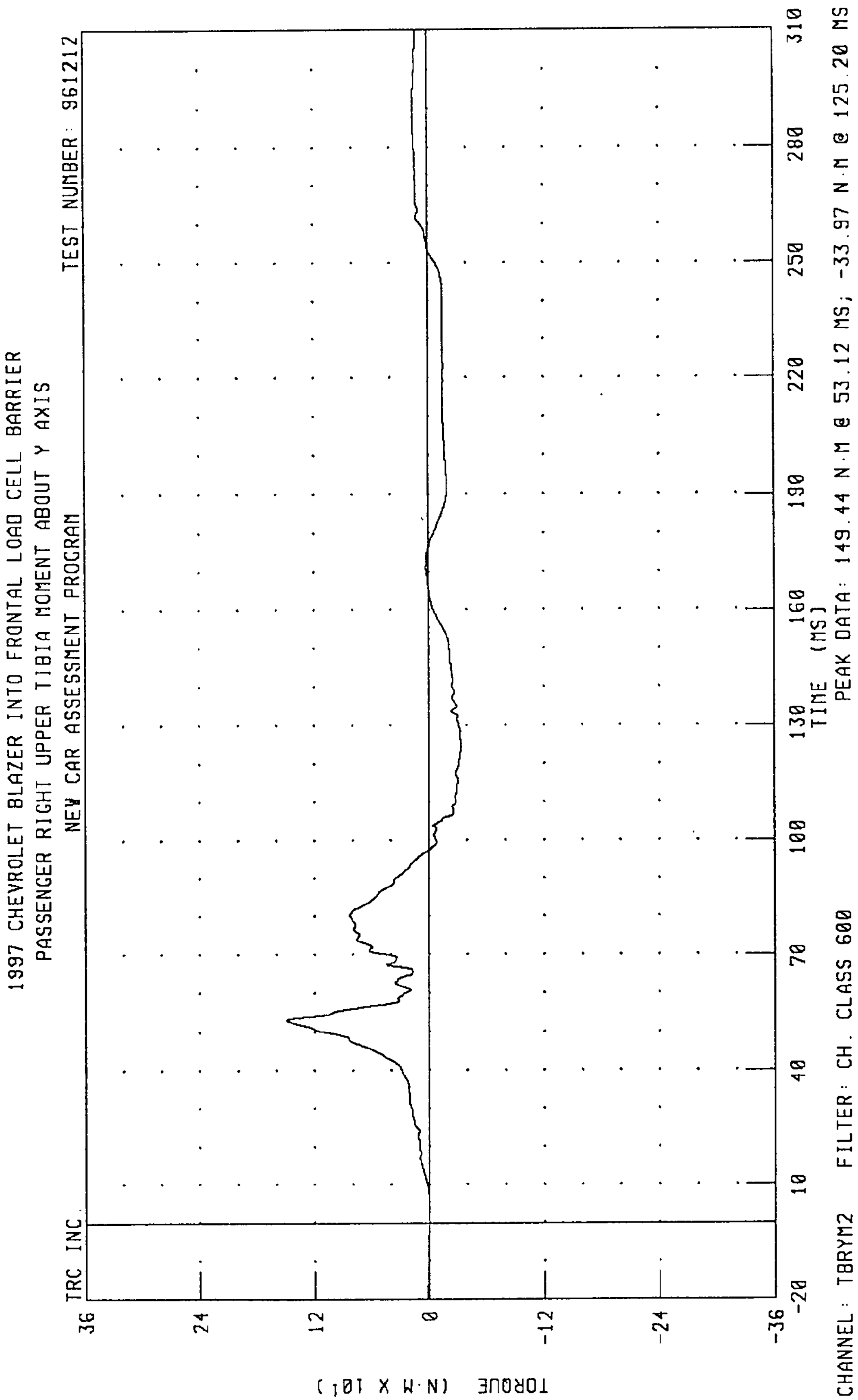
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT UPPER TIBIA MOMENT ABOUT Y AXIS
NEW CAR ASSESSMENT PROGRAM



CHANNEL: TBLYM2   FILTER: CH. CLASS 600   PEAK DATA: 155.80 N·M @ 46.24 MS; -55.09 N·M @ 123.28 MS

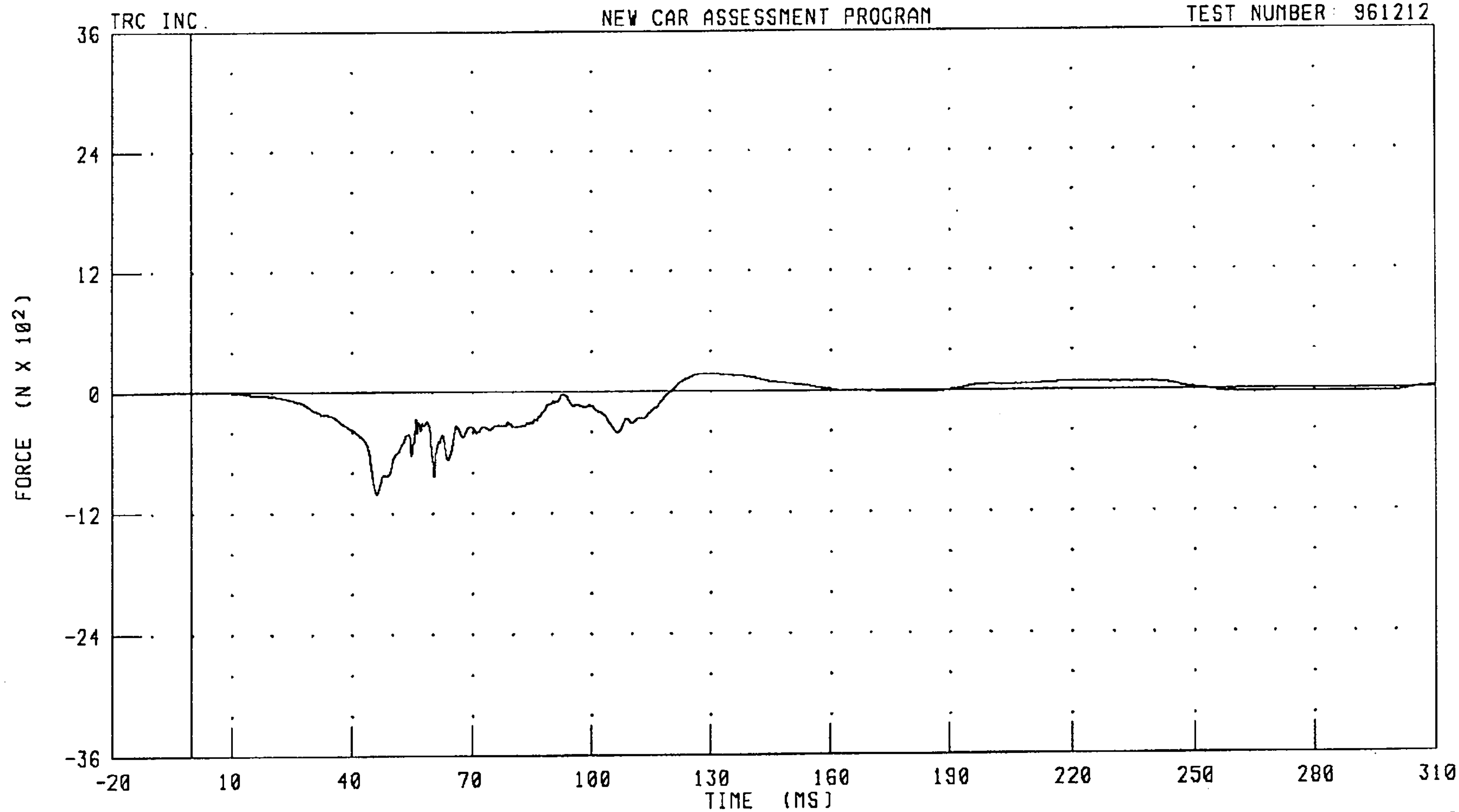


1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT UPPER TIBIA MOMENT ABOUT X AXIS
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 961212
TORQUE (N·M X 10¹)
36
24
12
0
-12
-24
-36
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: TBRXM2
FILTER: CH. CLASS 600
PEAK DATA: 10.29 N·M @ 111.12 MS; -84.92 N·M @ 53.76 MS



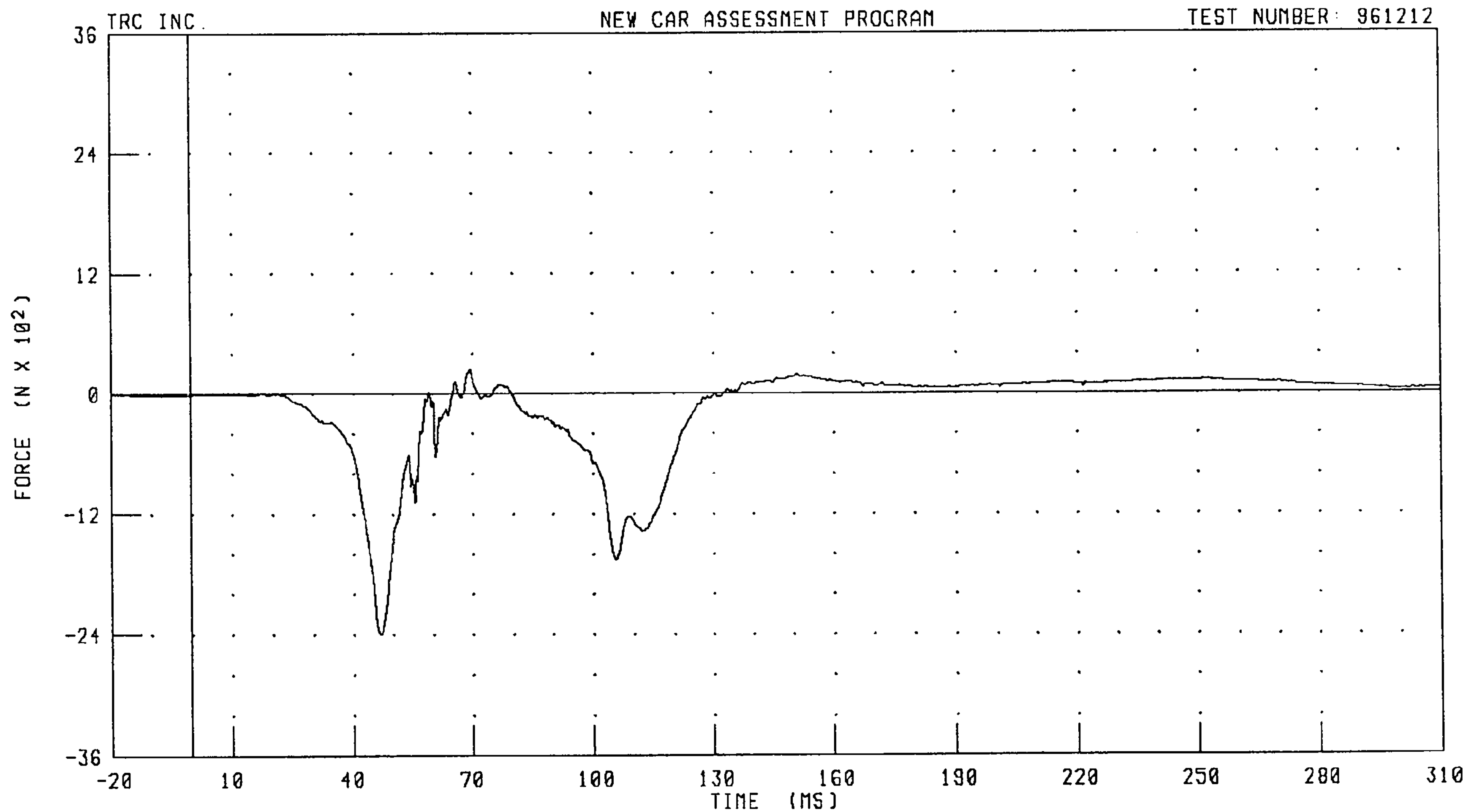
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT UPPER TIBIA MOMENT ABOUT Y AXIS
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 961212
TRC INC.
36
24
12
0
-12
-24
-36
TORQUE (N·M X 10¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: TBRYM2
FILTER: CH. CLASS 600
PEAK DATA: 149.44 N·M @ 53.12 MS; -33.97 N·M @ 125.20 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT LOWER TIBIA X-AXIS FORCE
NEW CAR ASSESSMENT PROGRAM



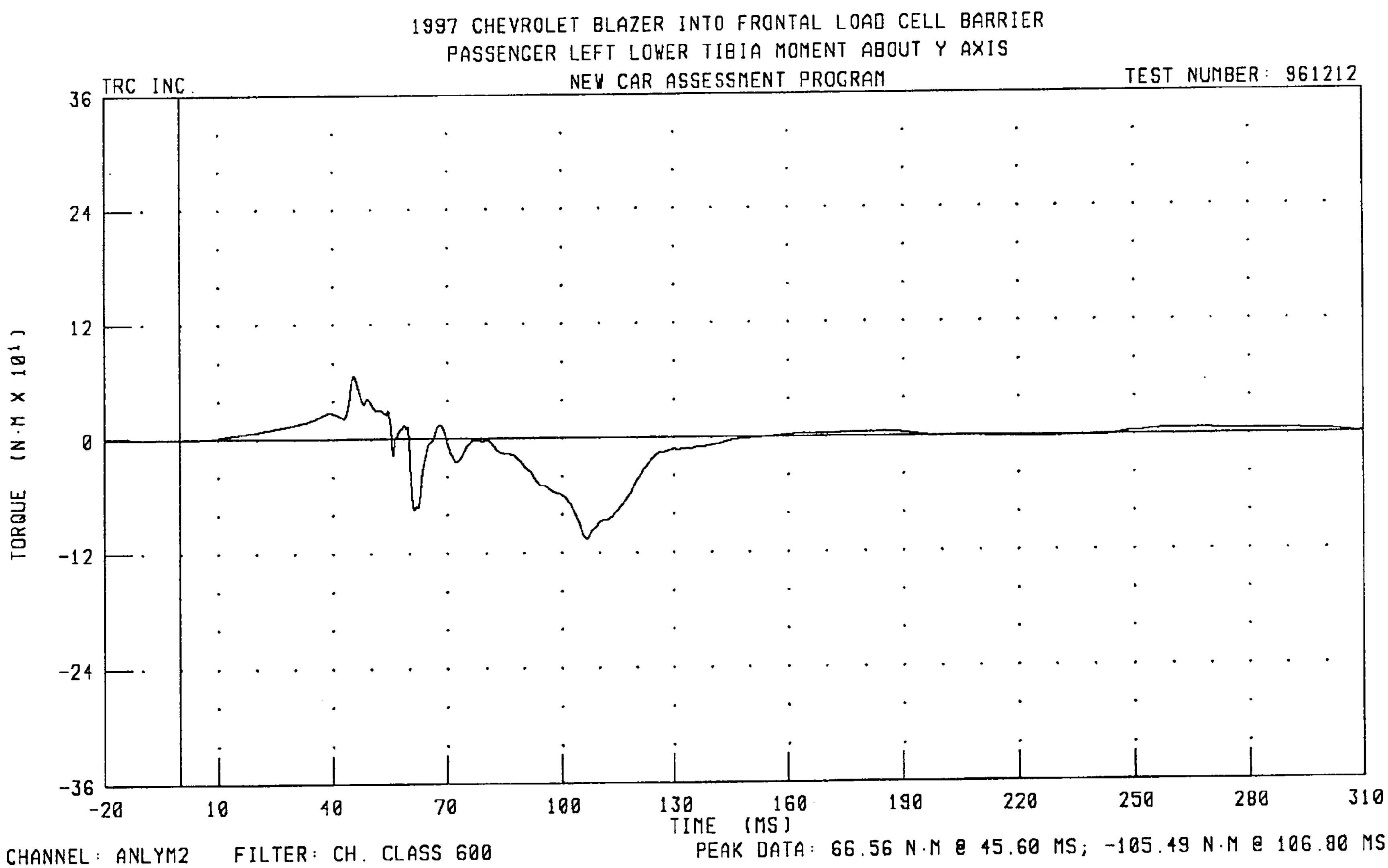
CHANNEL: ANLXF2 FILTER: CH. CLASS 600 PEAK DATA: 178.00 N @ 131.44 MS; -1010.36 N @ 46.24 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT LOWER TIBIA Z-AXIS FORCE
NEW CAR ASSESSMENT PROGRAM

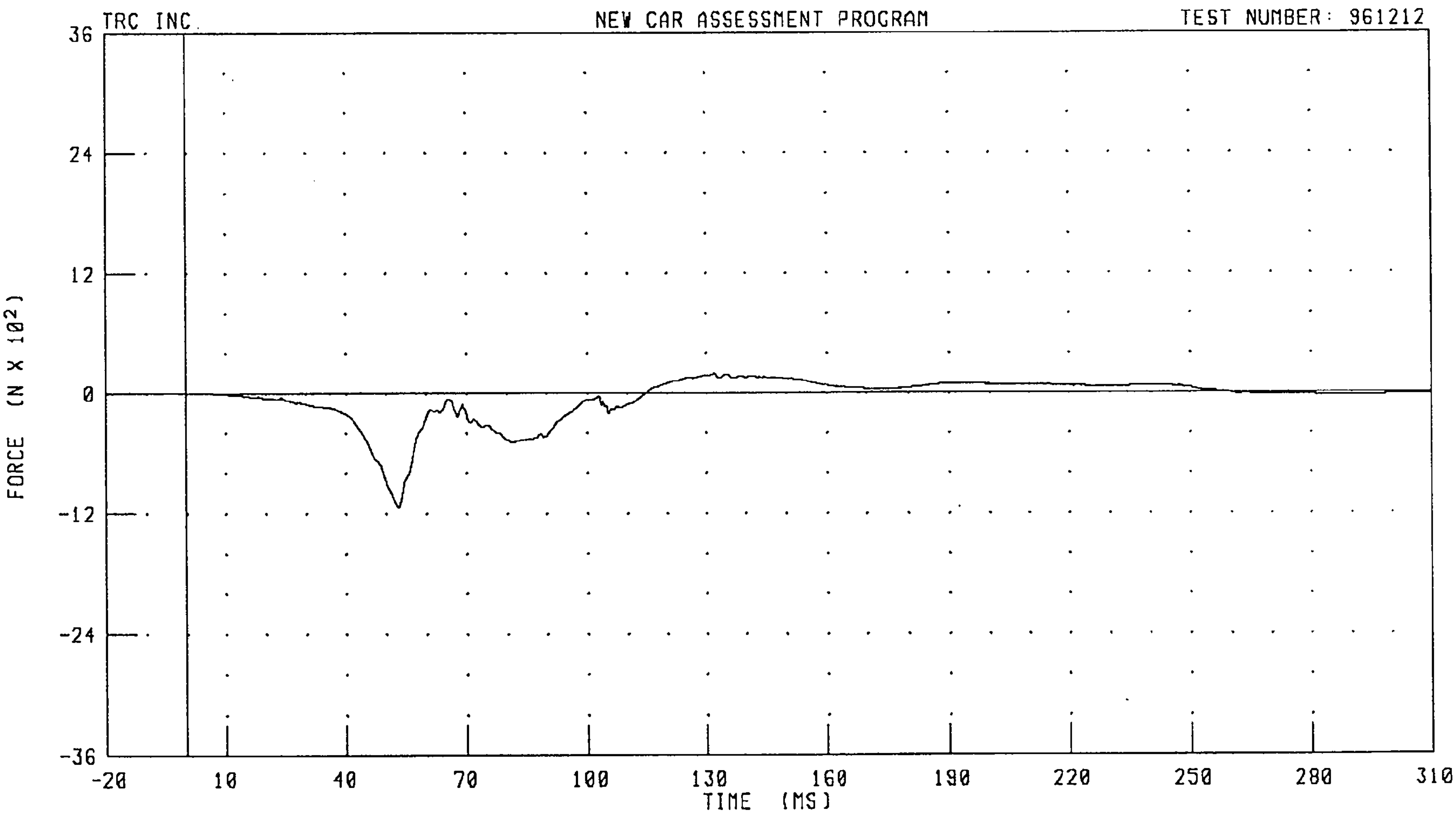


CHANNEL: ANLZF2 FILTER: CH. CLASS 600 PEAK DATA: 243.12 N @ 69.52 MS; -2401.18 N @ 47.12 MS

961212

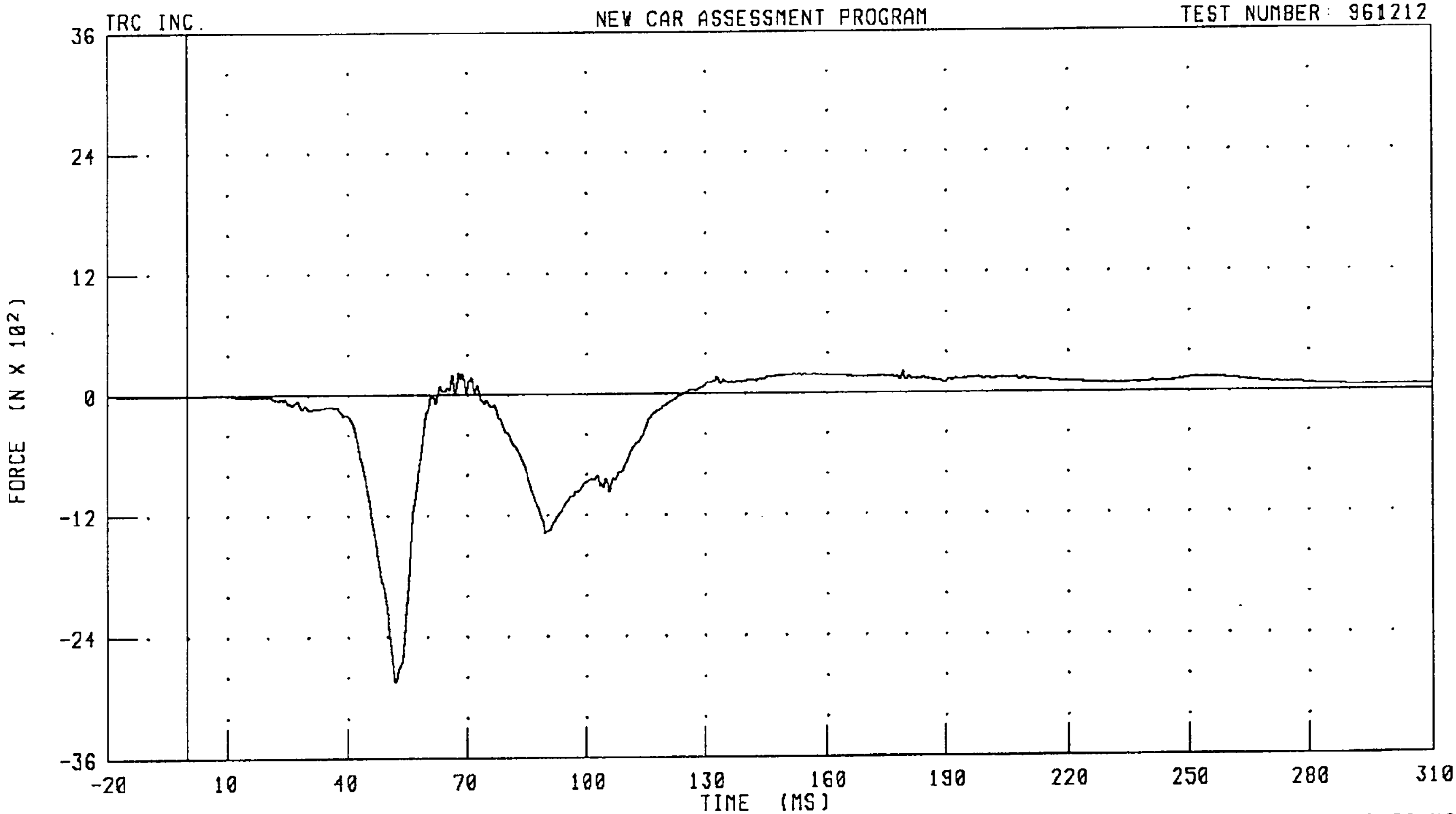

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT LOWER TIBIA MOMENT ABOUT Y AXIS
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 961212
36
24
12
0
-12
-24
-36
TORQUE (N·M X 10¹)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: ANLYM2
FILTER: CH. CLASS 600
PEAK DATA: 66.56 N·M @ 45.60 MS; -105.49 N·M @ 106.80 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT LOWER TIBIA X-AXIS FORCE
NEW CAR ASSESSMENT PROGRAM



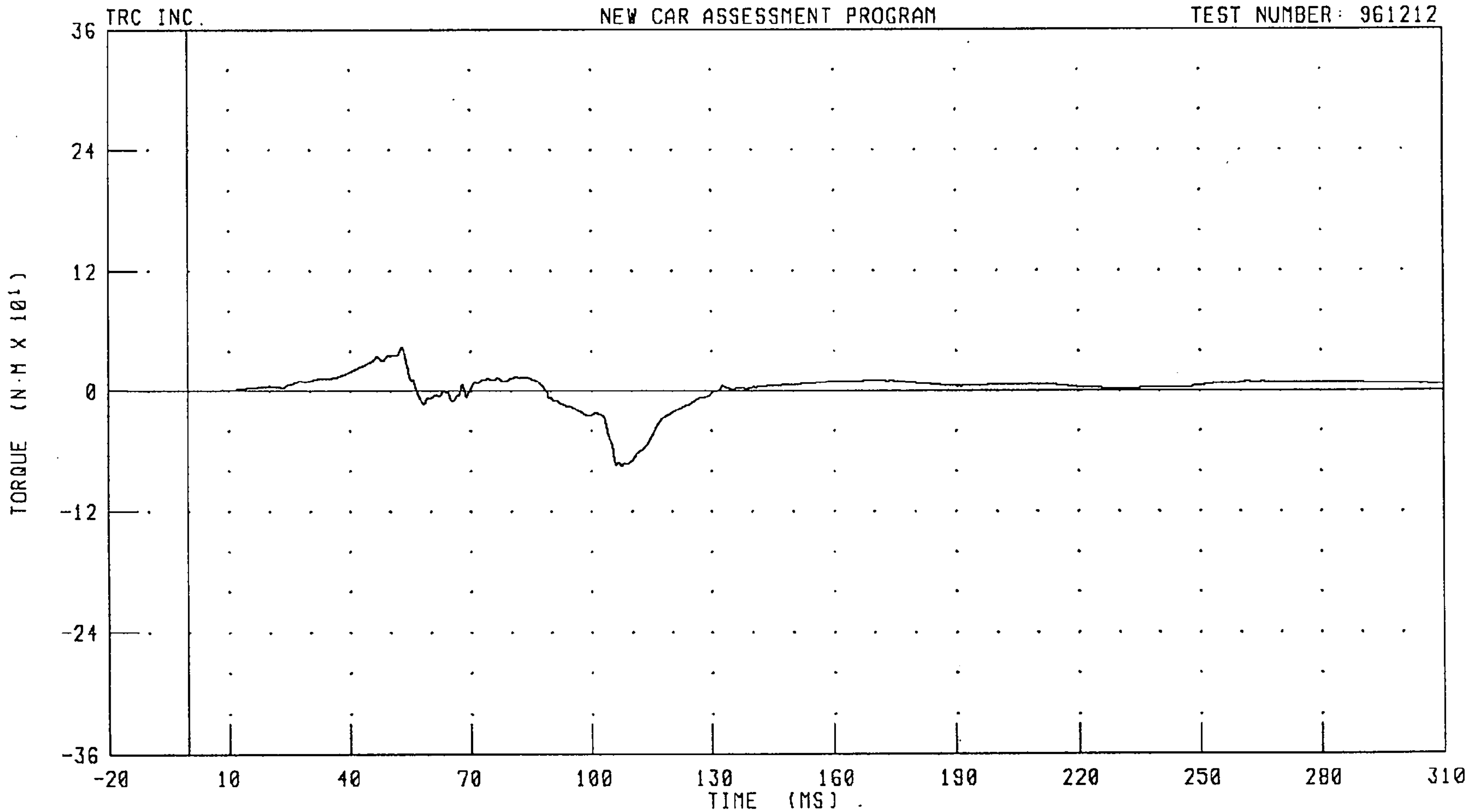
CHANNEL: ANRXF2 FILTER: CH. CLASS 600 PEAK DATA: 191.86 N @ 132.32 MS; -1139.20 N @ 53.12 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT LOWER TIBIA Z-AXIS FORCE
NEW CAR ASSESSMENT PROGRAM



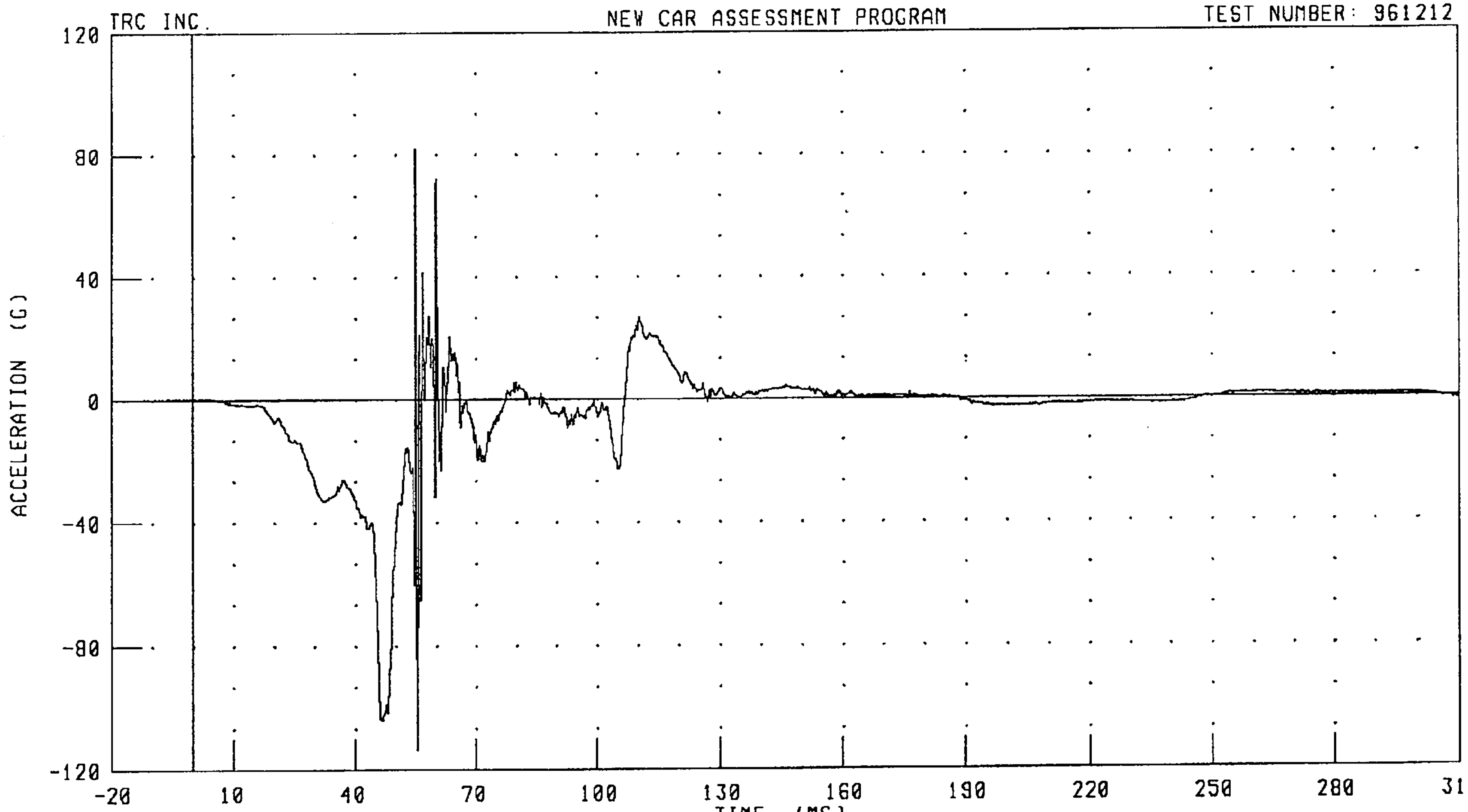
CHANNEL: ANRZF2   FILTER: CH. CLASS 600   PEAK DATA: 222.90 N @ 67.92 MS; -2848.50 N @ 52.00 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT LOWER TIBIA MOMENT ABOUT Y AXIS
NEW CAR ASSESSMENT PROGRAM



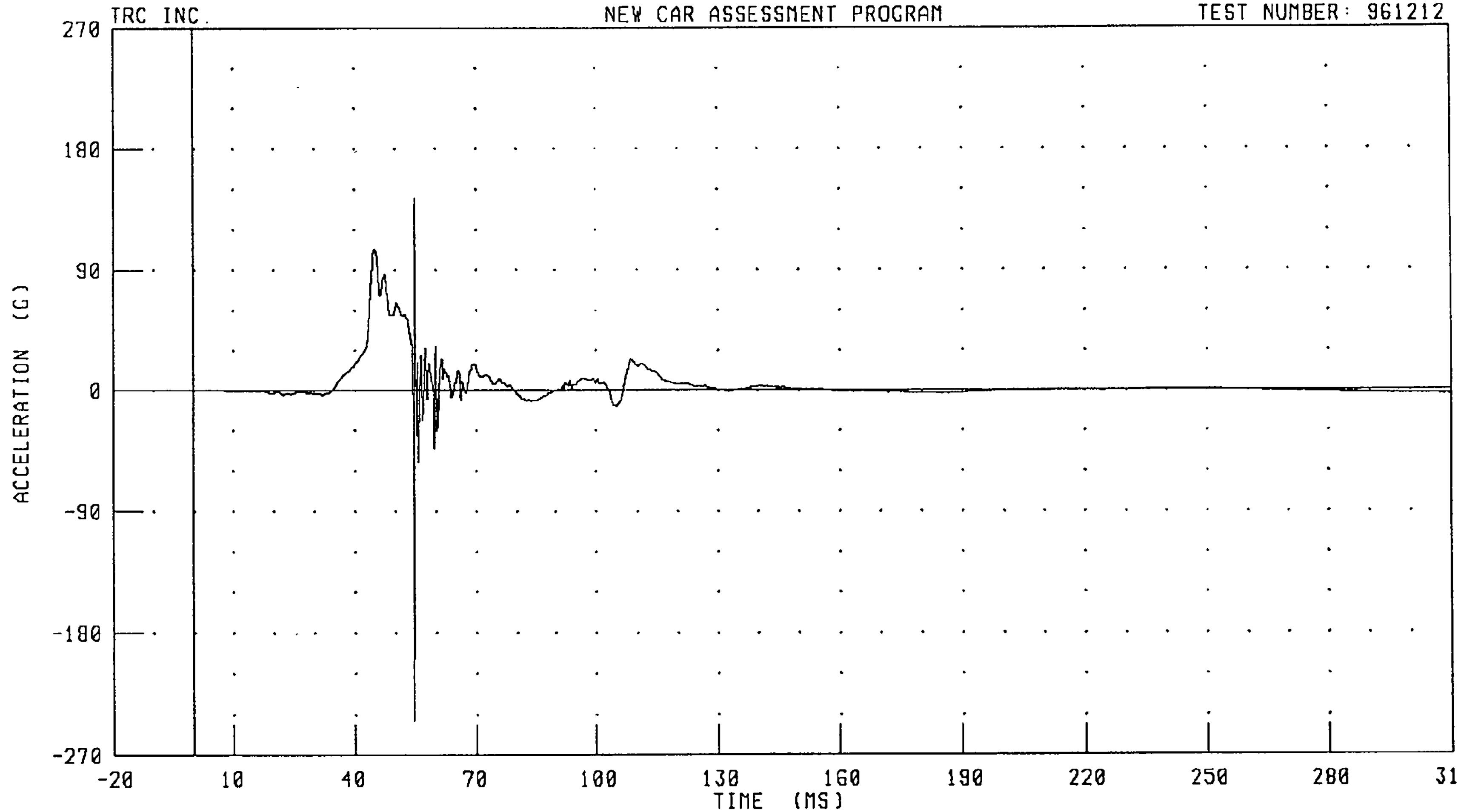
CHANNEL: ANRYM2 FILTER: CH. CLASS 600 PEAK DATA: 43.94 N·M @ 53.04 MS; -75.01 N·M @ 107.52 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT FOOT X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

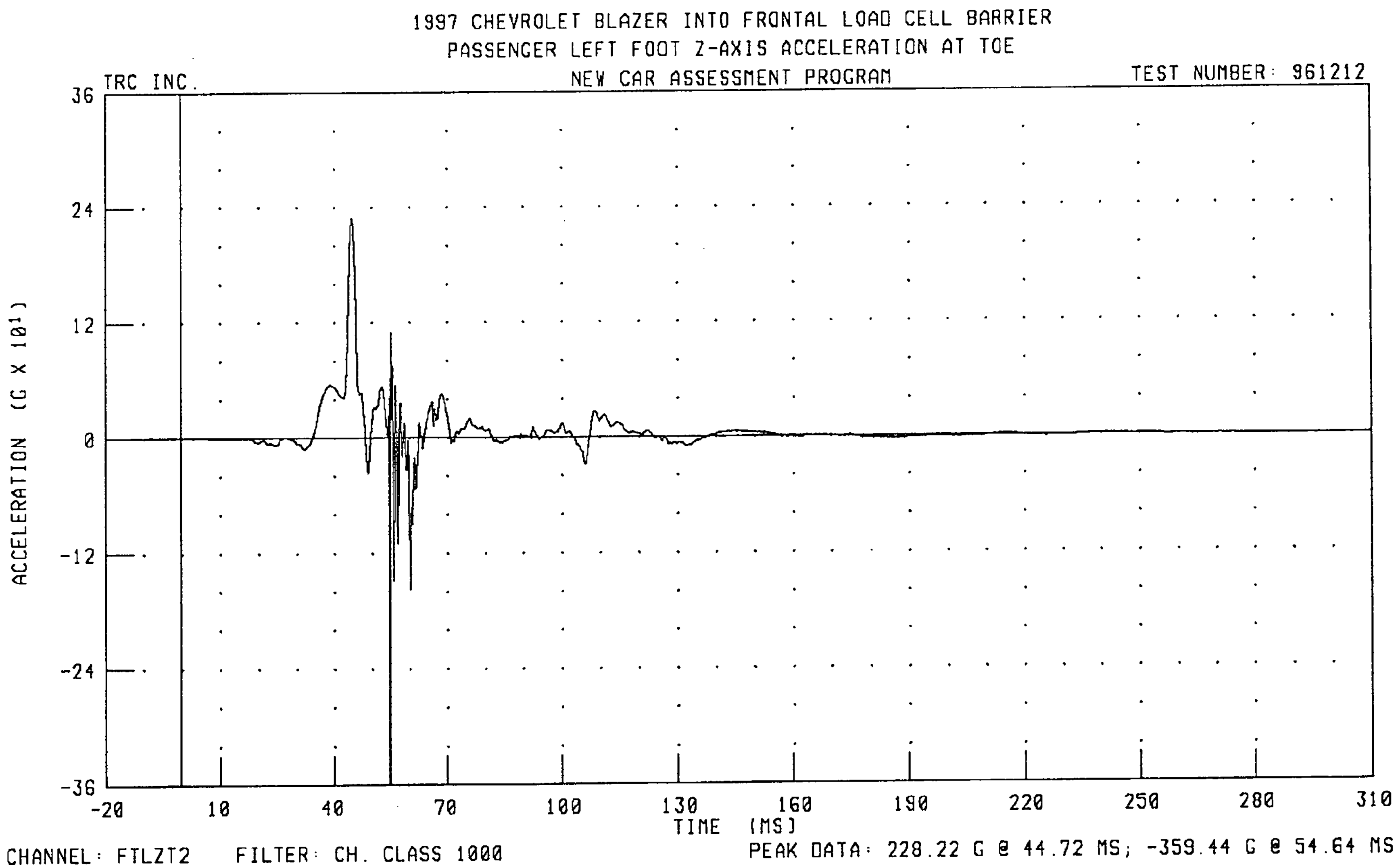


CHANNEL: FTLXG2   FILTER: CH. CLASS 1000   PEAK DATA: 81.86 G @ 54.88 MS; -113.51 G @ 55.20 MS

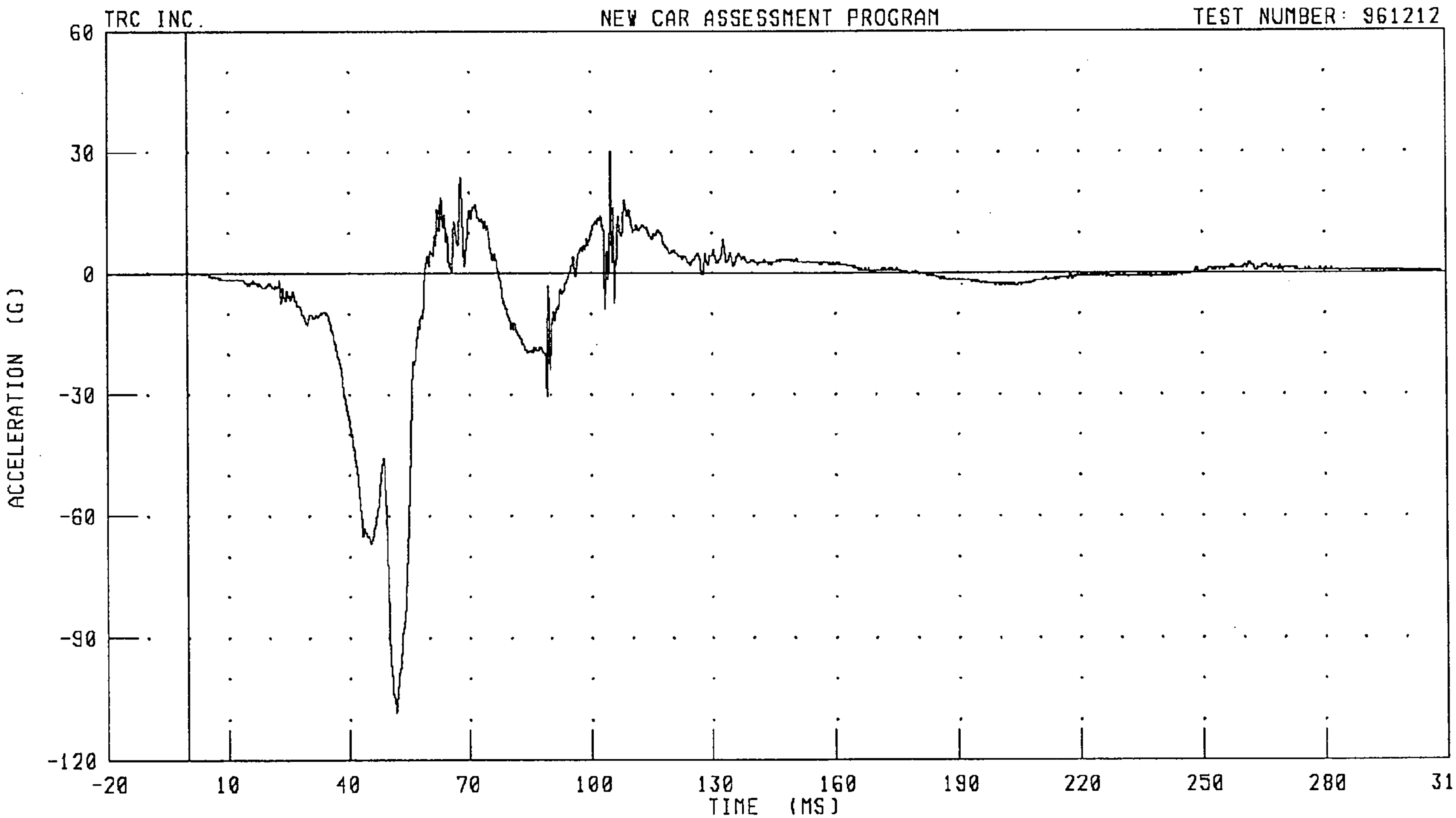
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT FOOT Z-AXIS ACCELERATION AT HEEL
NEW CAR ASSESSMENT PROGRAM



CHANNEL: FTLZH2   FILTER: CH. CLASS 1000   PEAK DATA: 143.38 G @ 54.96 MS; -244.74 G @ 54.56 MS

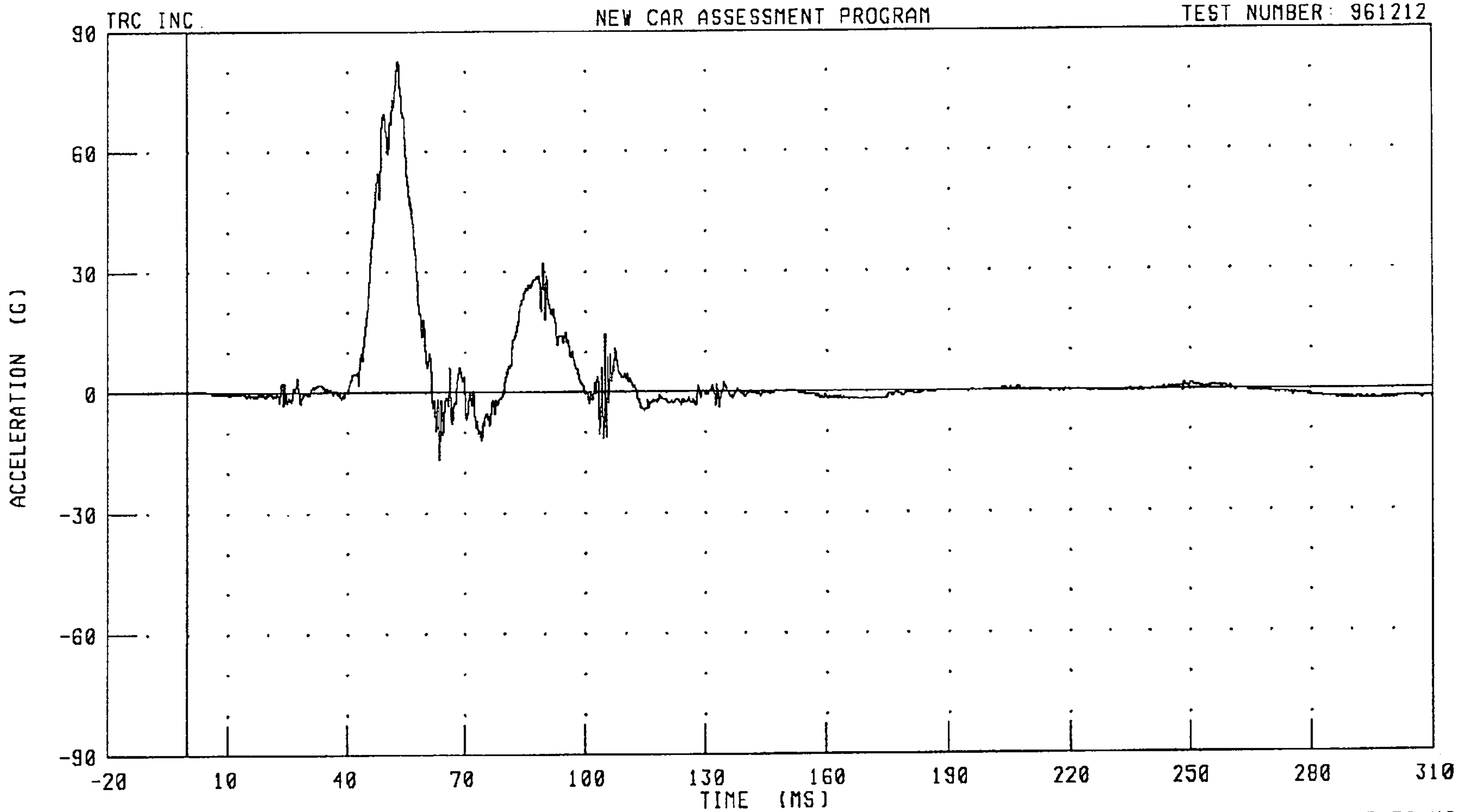

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER LEFT FOOT Z-AXIS ACCELERATION AT TOE
NEW CAR ASSESSMENT PROGRAM
TEST NUMBER: 961212
TRC INC.
ACCELERATION (G X 10¹)
36
24
12
0
-12
-24
-36
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: FTLZT2 FILTER: CH. CLASS 1000
PEAK DATA: 228.22 G @ 44.72 MS; -359.44 G @ 54.64 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT FOOT X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM



CHANNEL: FTRXG2   FILTER: CH. CLASS 1000   PEAK DATA: 30.25 G @ 104.88 MS; -108.47 G @ 51.76 MS

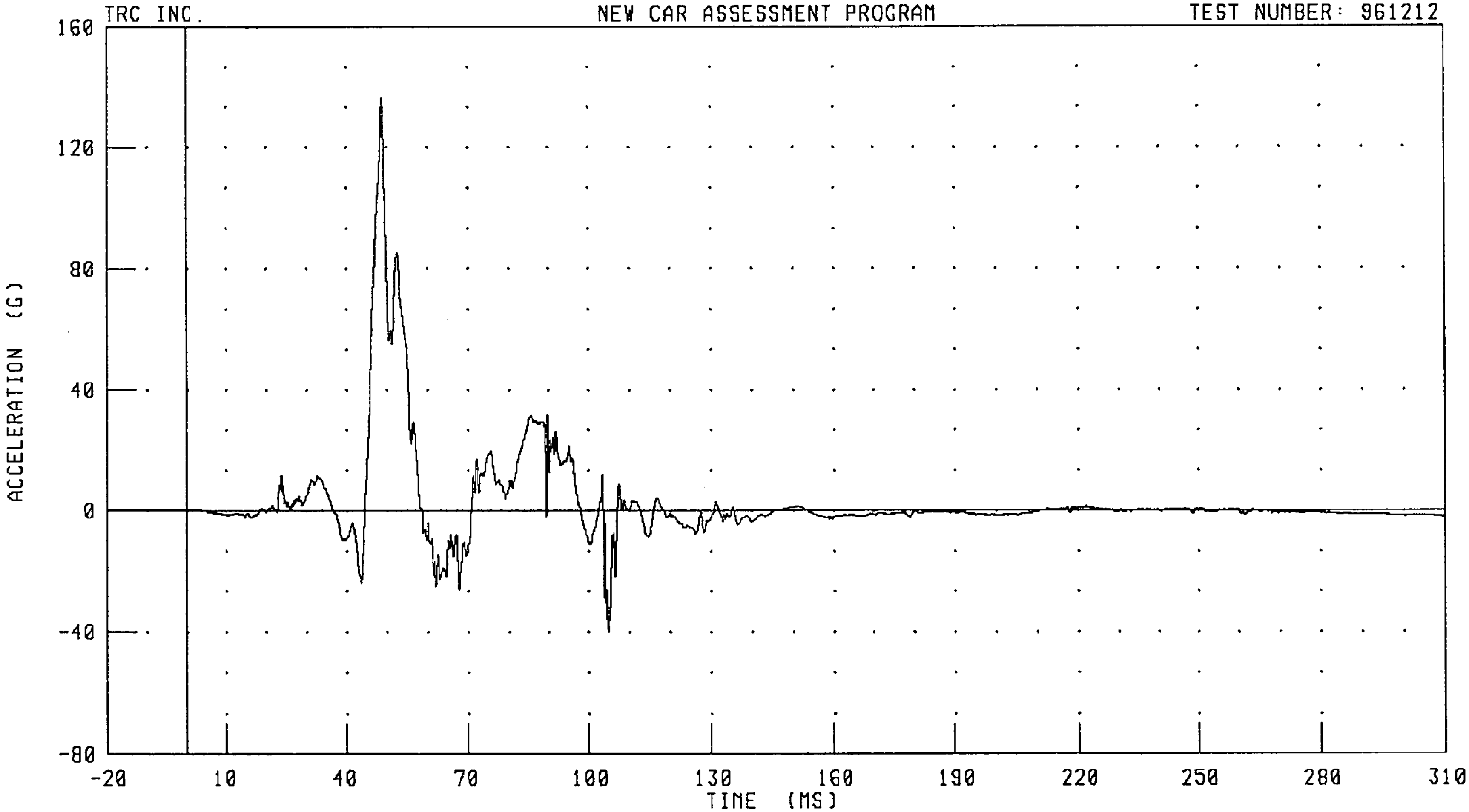
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT FOOT Z-AXIS ACCELERATION AT HEEL
NEW CAR ASSESSMENT PROGRAM



CHANNEL: FTRZH2 FILTER: CH. CLASS 1000 PEAK DATA: 82.68 G @ 52.88 MS; -16.64 G @ 63.52 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER RIGHT FOOT Z-AXIS ACCELERATION AT TOE
NEW CAR ASSESSMENT PROGRAM

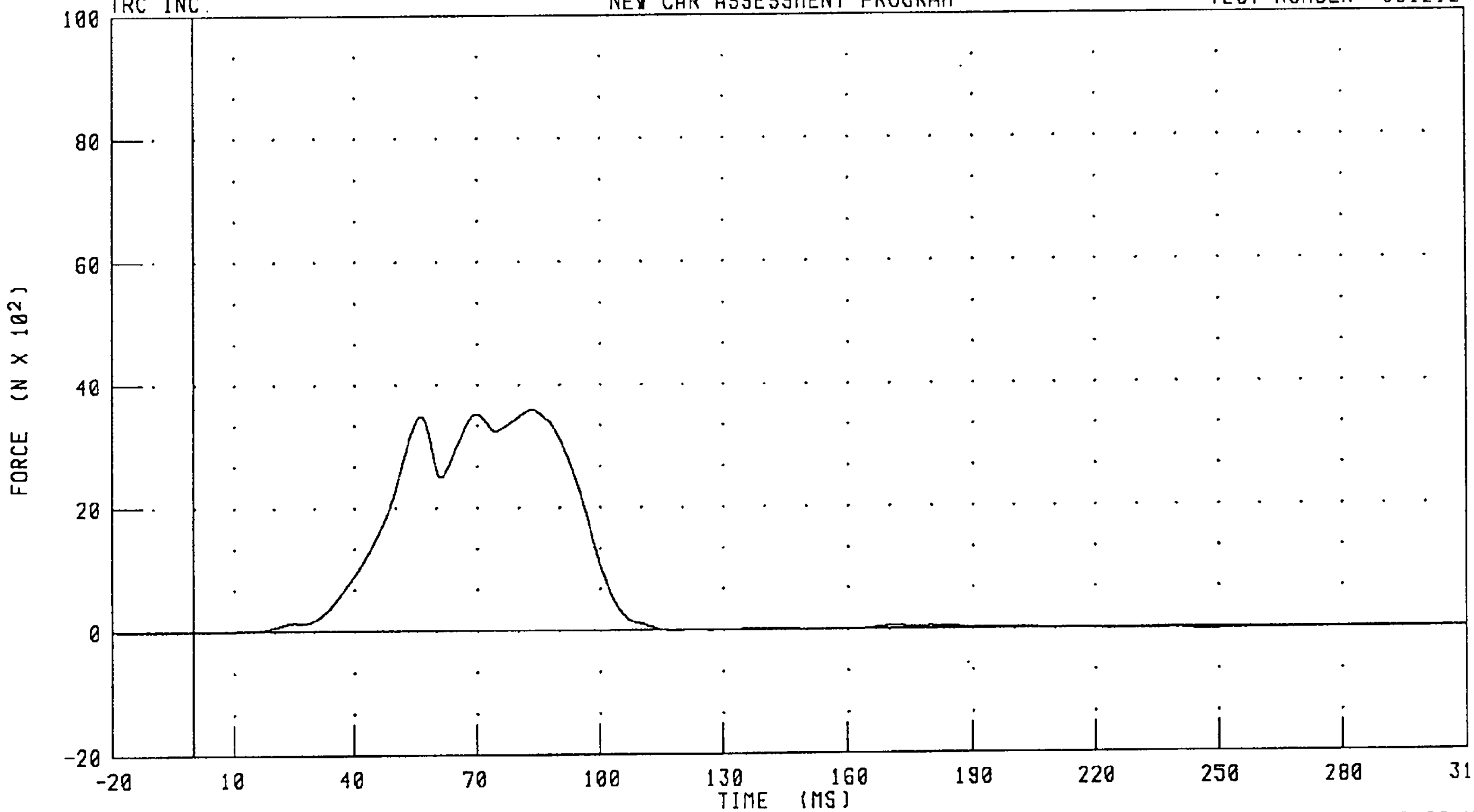
TRC INC. TEST NUMBER: 961212



CHANNEL: FTRZT2 FILTER: CH. CLASS 1000 PEAK DATA: 136.18 G @ 48.88 MS; -39.81 G @ 104.96 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER LAP BELT OUTBOARD FORCE
NEW CAR ASSESSMENT PROGRAM

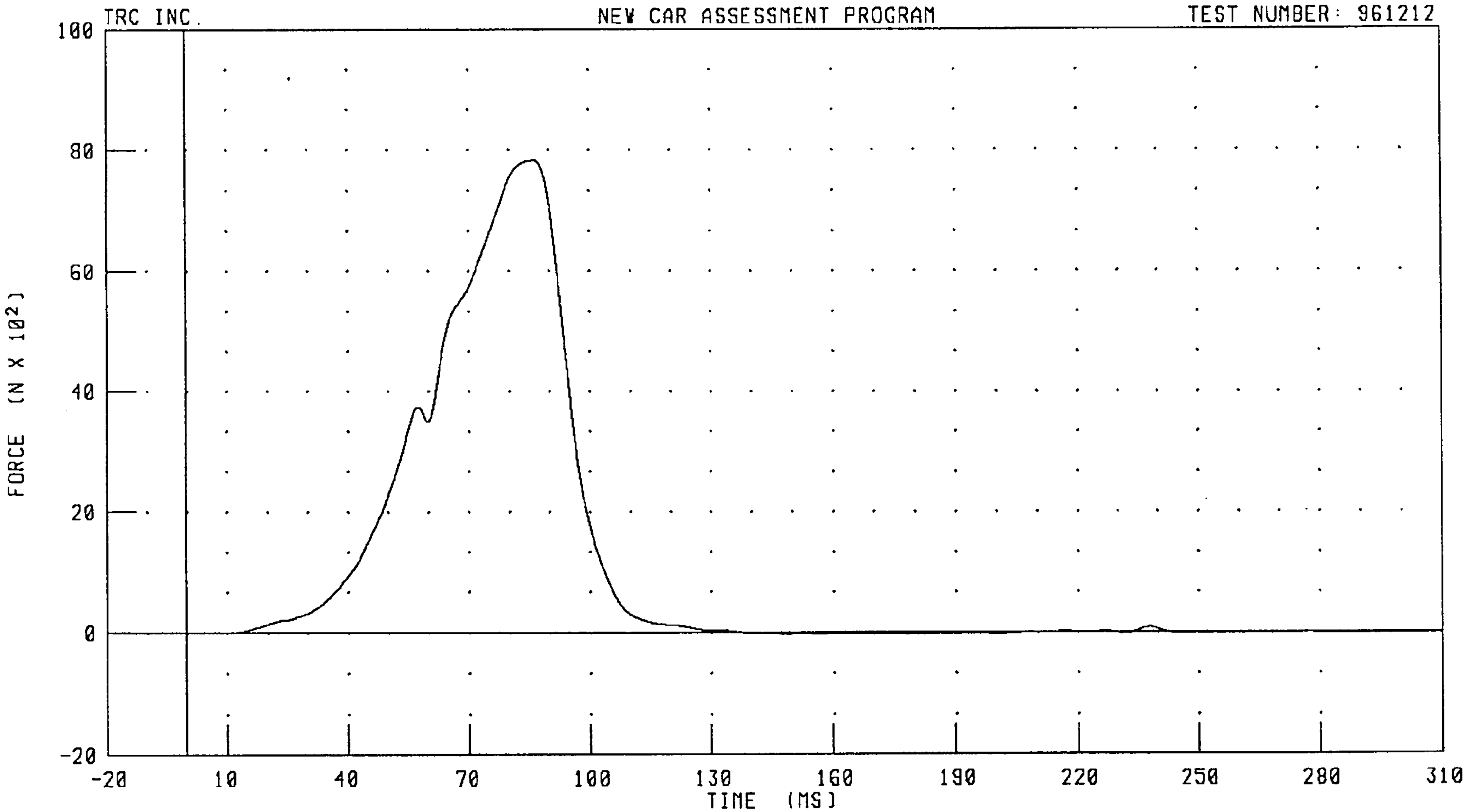
TEST NUMBER: 961212



CHANNEL: LBOF1 FILTER: CH. CLASS 60

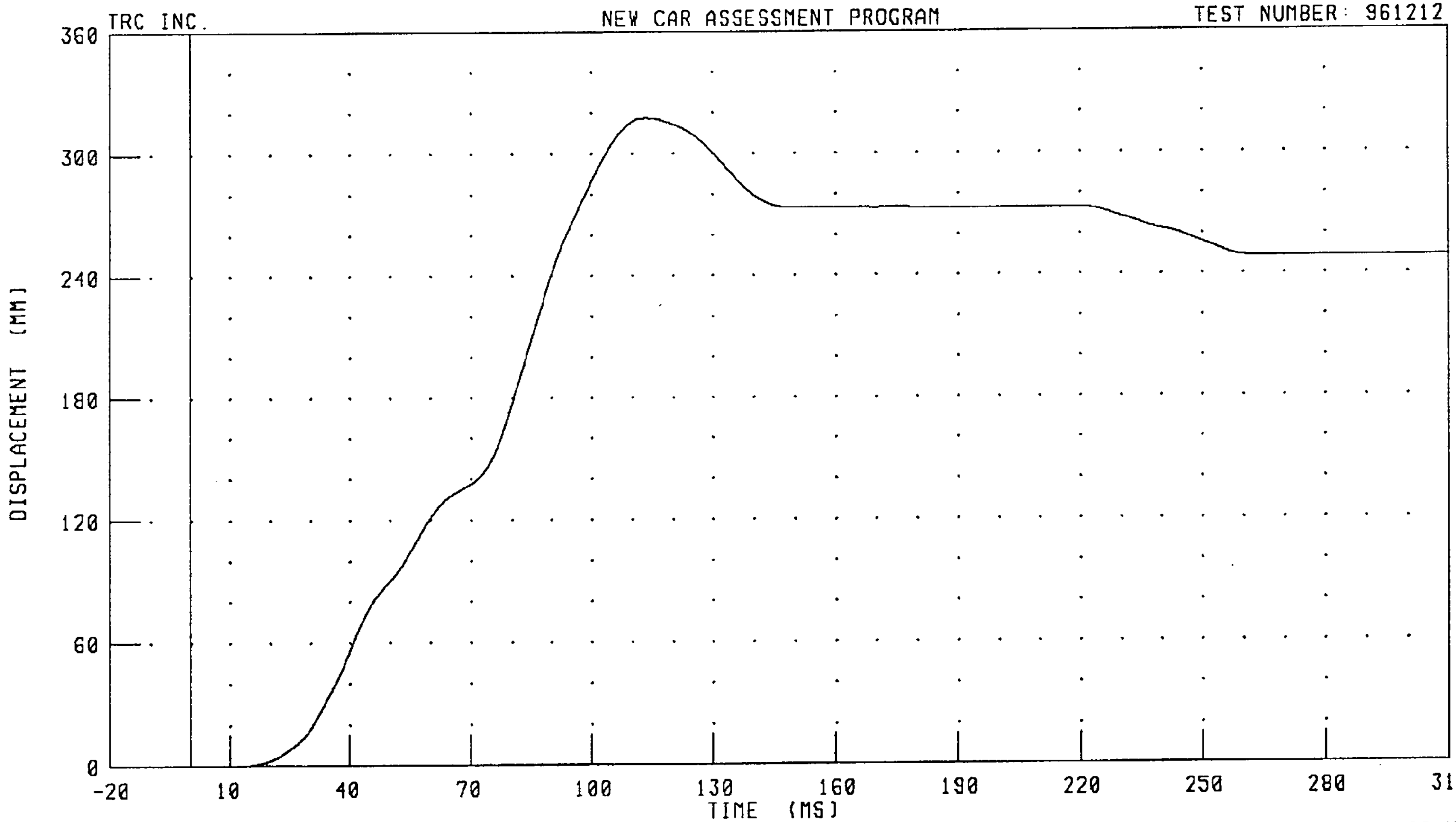
PEAK DATA: 3590.40 N @ 83.44 MS; -33.49 N @ 246.96 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER SHOULDER BELT FORCE
NEW CAR ASSESSMENT PROGRAM



CHANNEL: SHBF1 FILTER: CH. CLASS 60 PEAK DATA: 7826.10 N @ 86.48 MS; -34.55 N @ 179.60 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER SHOULDER BELT DISPLACEMENT
NEW CAR ASSESSMENT PROGRAM

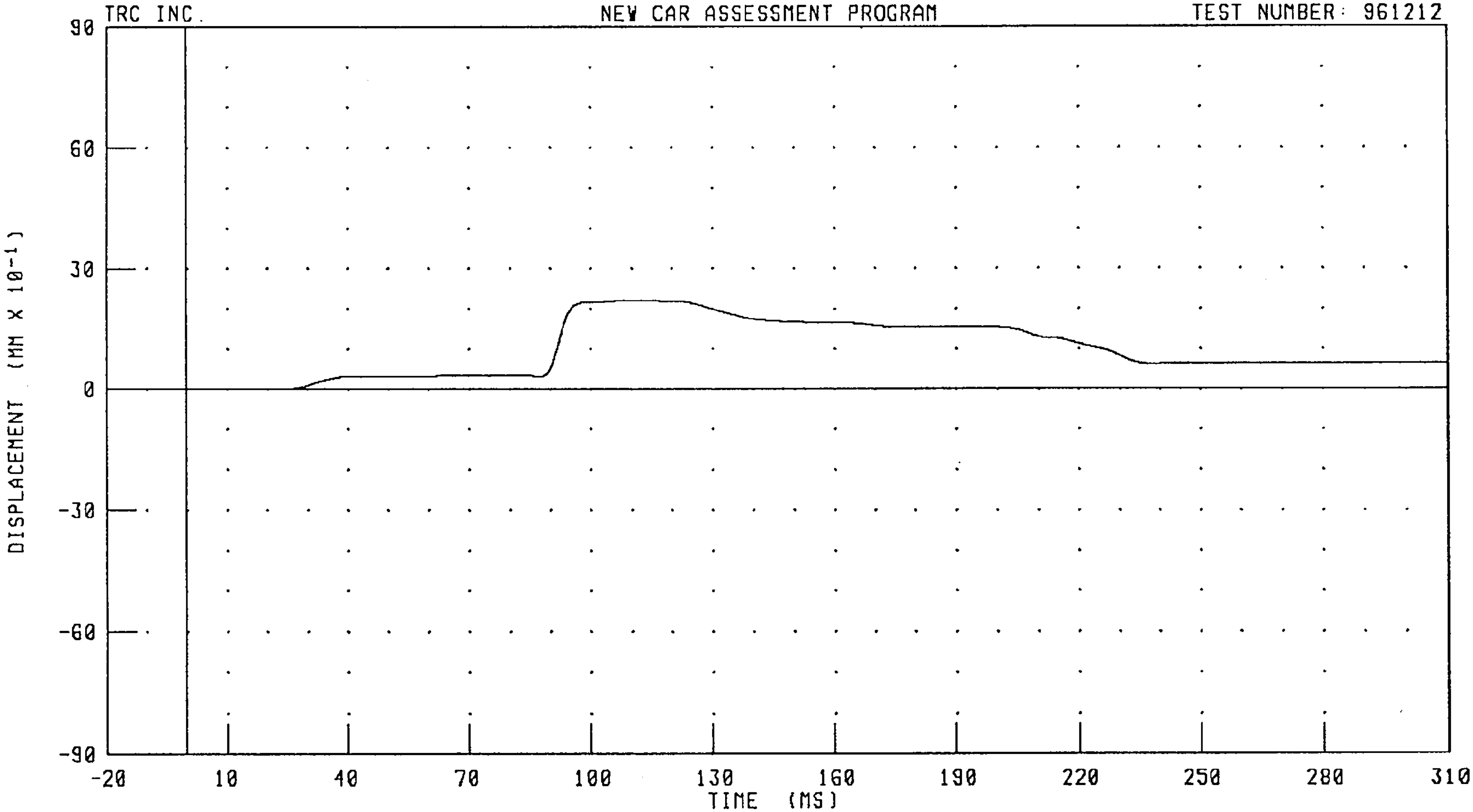


CHANNEL: SHB01 FILTER: CH. CLASS 60 PEAK DATA: 317.47 MM @ 113.52 MS; -0.01 MM @ -0.96 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
DRIVER SEAT BELT EXTENSION
NEW CAR ASSESSMENT PROGRAM

TRC INC.

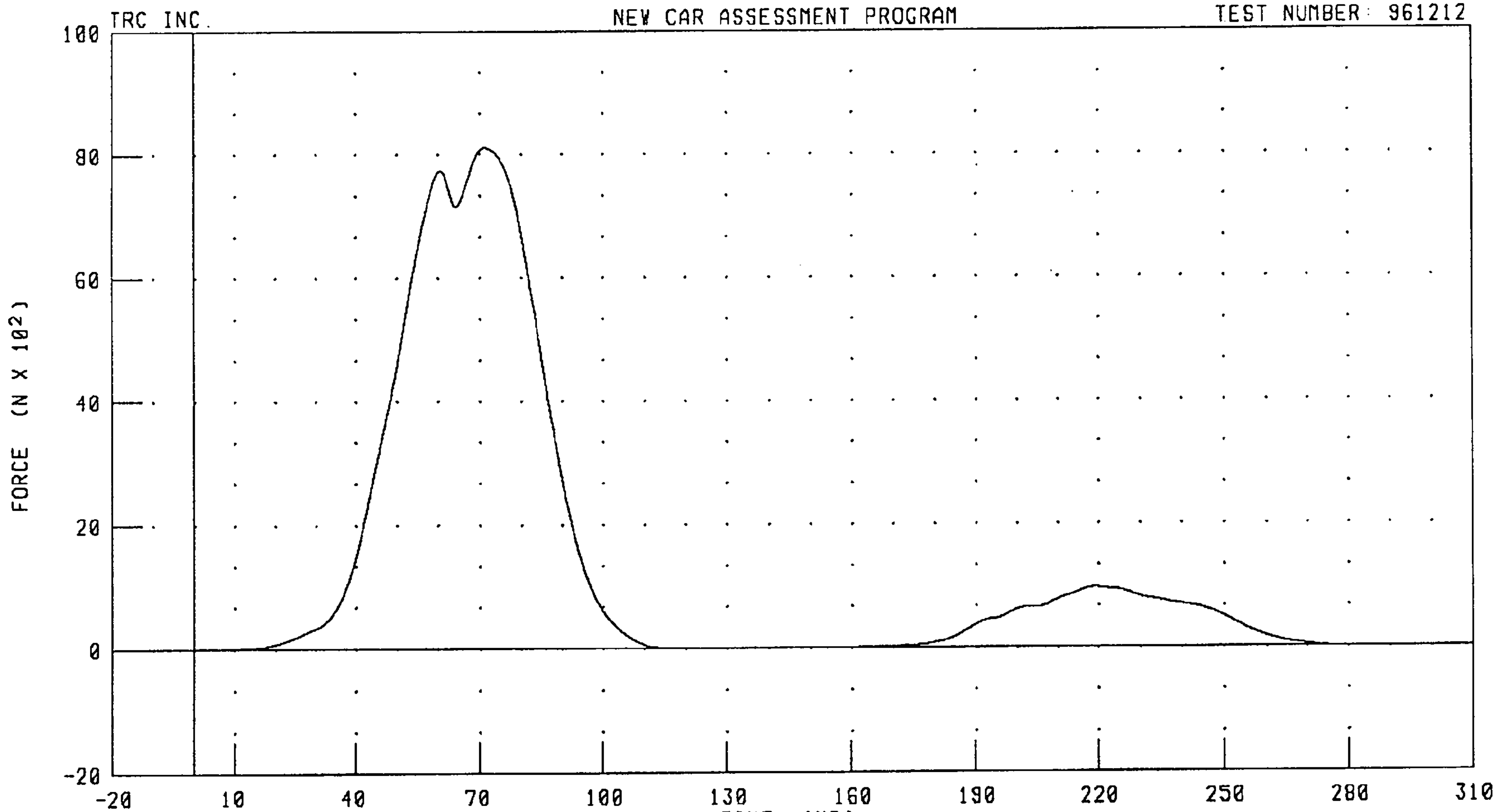
TEST NUMBER: 961212



CHANNEL: SBED1 FILTER: CH. CLASS 60 PEAK DATA: 2.22 MM @ 111.04 MS; 0.00 MM @ -13.04 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER LAP BELT OUTBOARD FORCE
NEW CAR ASSESSMENT PROGRAM

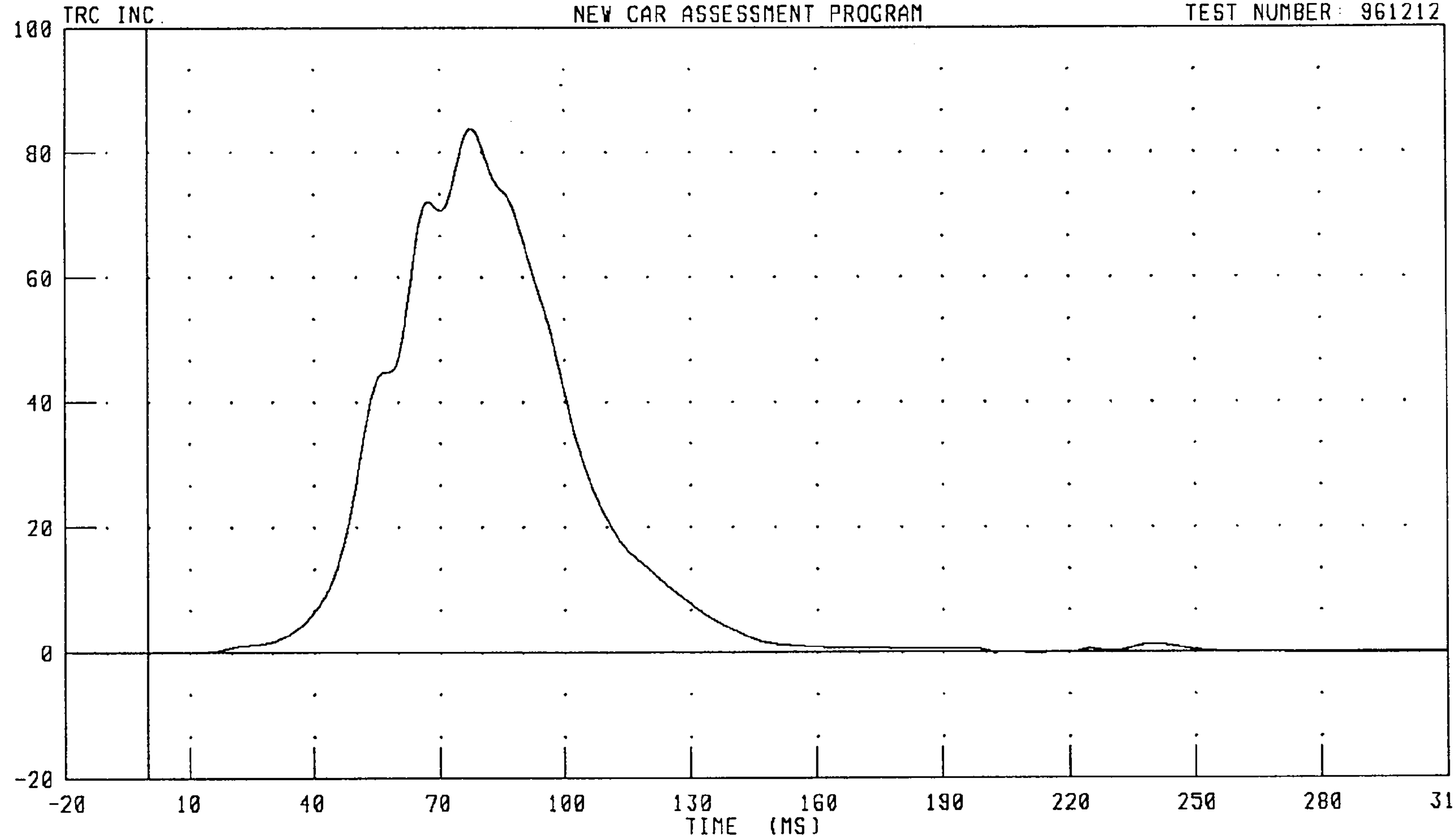
TEST NUMBER: 961212



CHANNEL: LBOF2   FILTER: CH. CLASS 60   PEAK DATA: 8110.10 N @ 71.44 MS; 0.37 N @ -20.00 MS

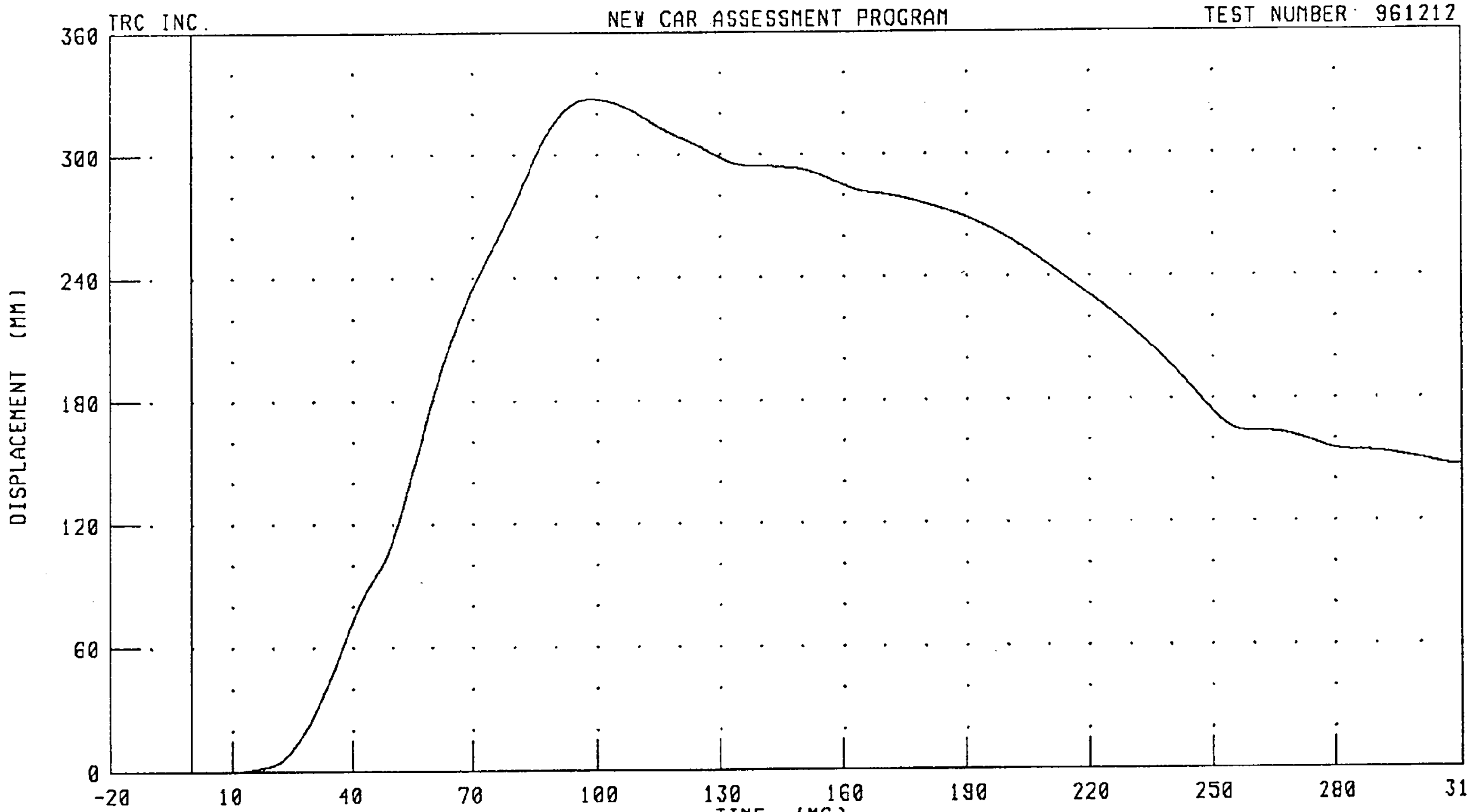
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER SHOULDER BELT FORCE
NEW CAR ASSESSMENT PROGRAM

TRC INC. TEST NUMBER: 961212



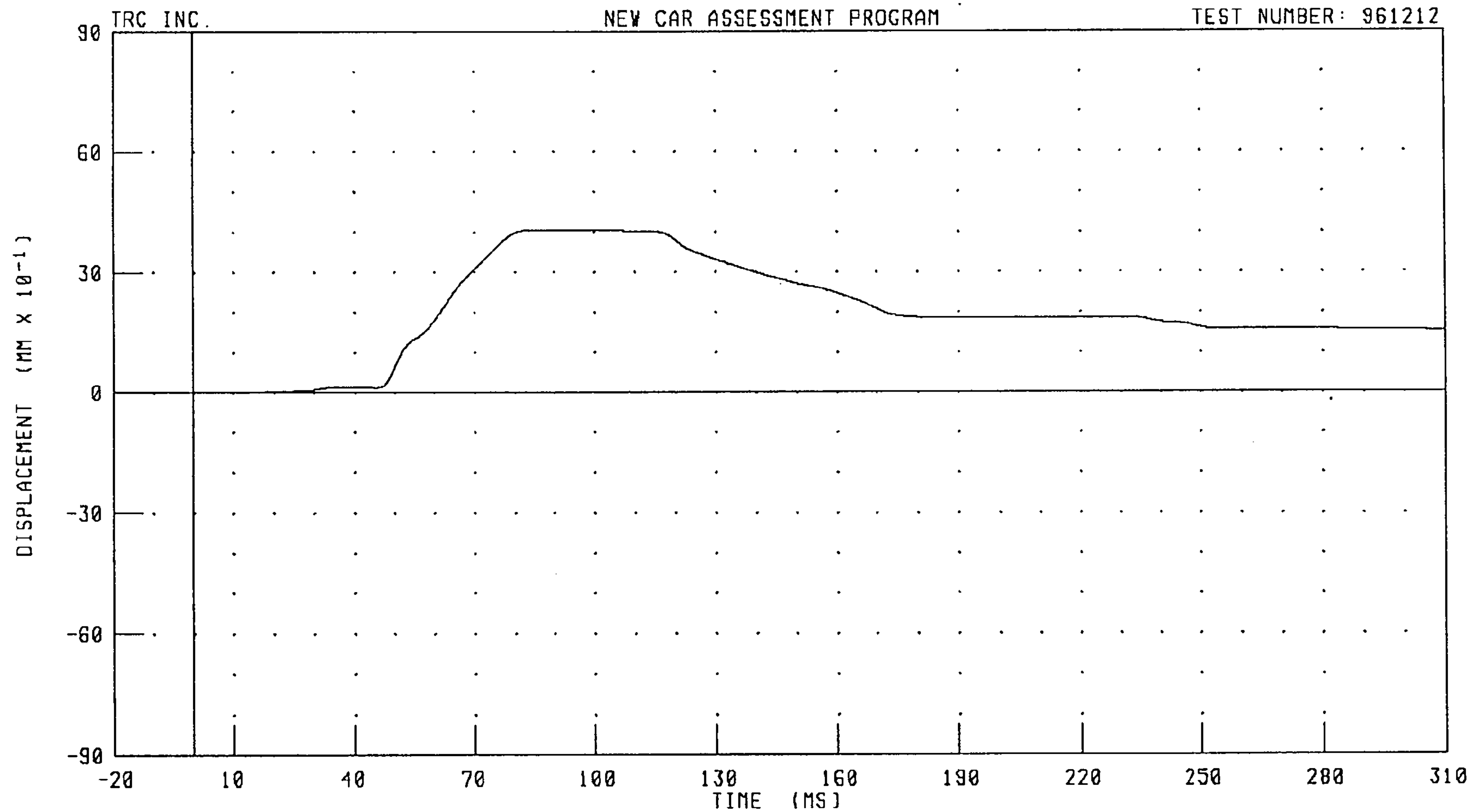
CHANNEL: SHBF2 FILTER: CH. CLASS 60 PEAK DATA: 8375.96 N @ 77.60 MS; -7.26 N @ 293.04 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER SHOULDER BELT DISPLACEMENT
NEW CAR ASSESSMENT PROGRAM

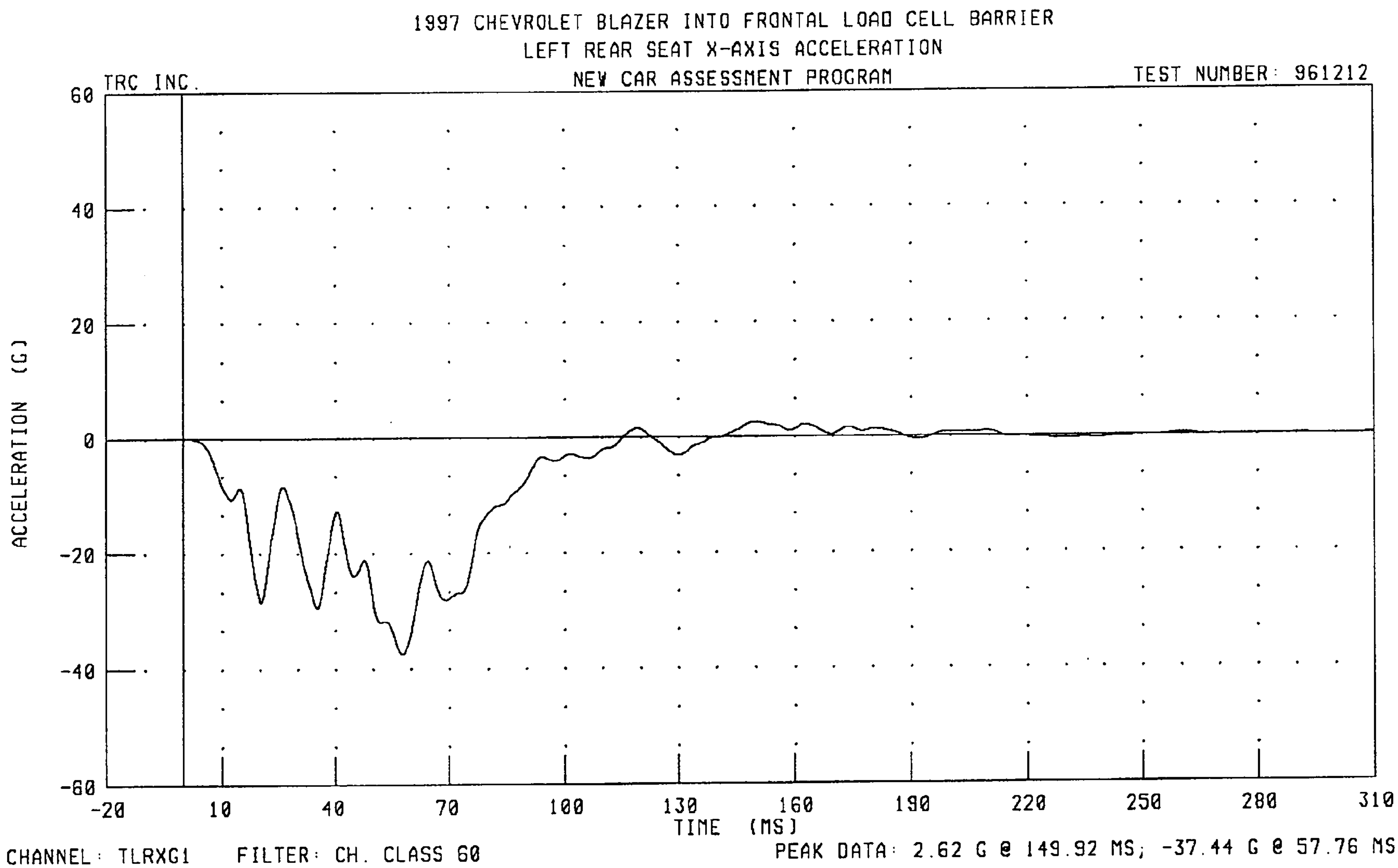


CHANNEL: SHB02 FILTER: CH. CLASS 60 PEAK DATA: 327.19 MM @ 98.48 MS; -0.06 MM @ 9.04 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
PASSENGER SEAT BELT EXTENSION
NEW CAR ASSESSMENT PROGRAM

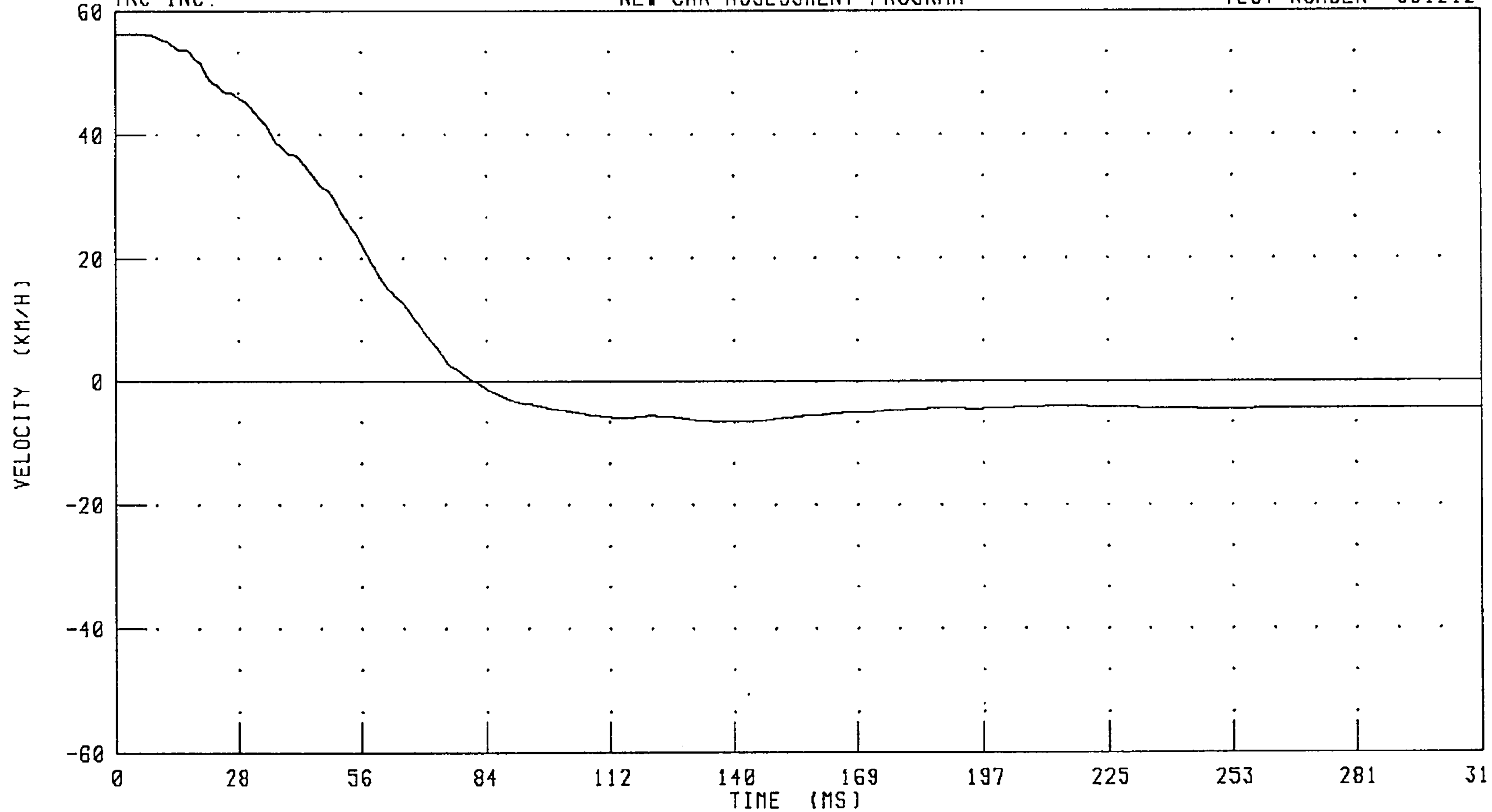


CHANNEL: SBED2 FILTER: CH. CLASS 60 PEAK DATA: 4.04 MM @ 86.08 MS; 0.00 MM @ -20.00 MS


1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 961212
ACCELERATION (G)
60
40
20
0
-20
-40
-60
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: TLRXG1
FILTER: CH. CLASS 60
PEAK DATA: 2.62 G @ 149.92 MS; -37.44 G @ 57.76 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT X-AXIS VELOCITY

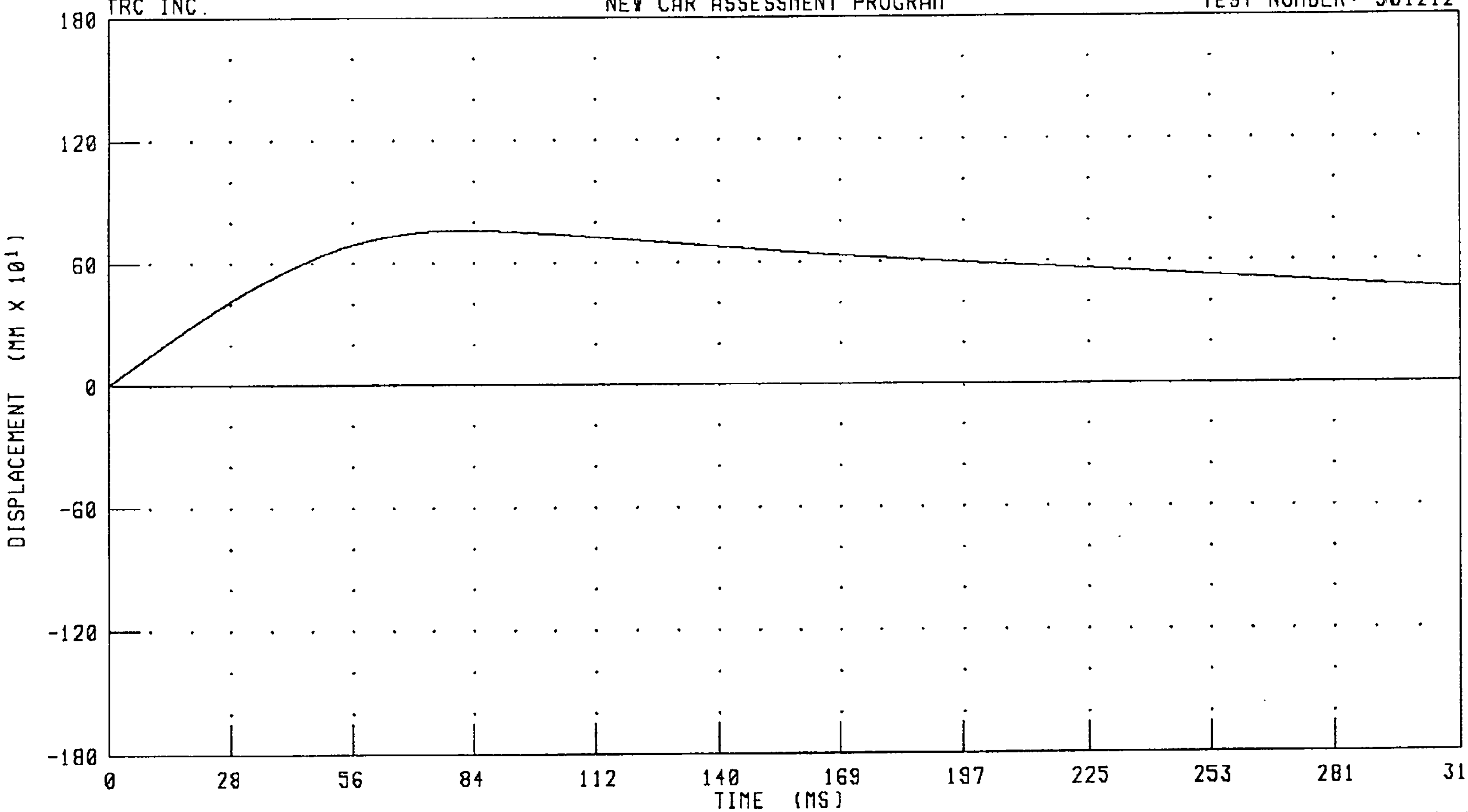
TRC INC. NEW CAR ASSESSMENT PROGRAM TEST NUMBER: 961212



CHANNEL: TLRXV1 FILTER: CH. CLASS 180 PEAK DATA: 56.30 KM/H @ 1.20 MS; -6.61 KM/H @ 142.32 MS

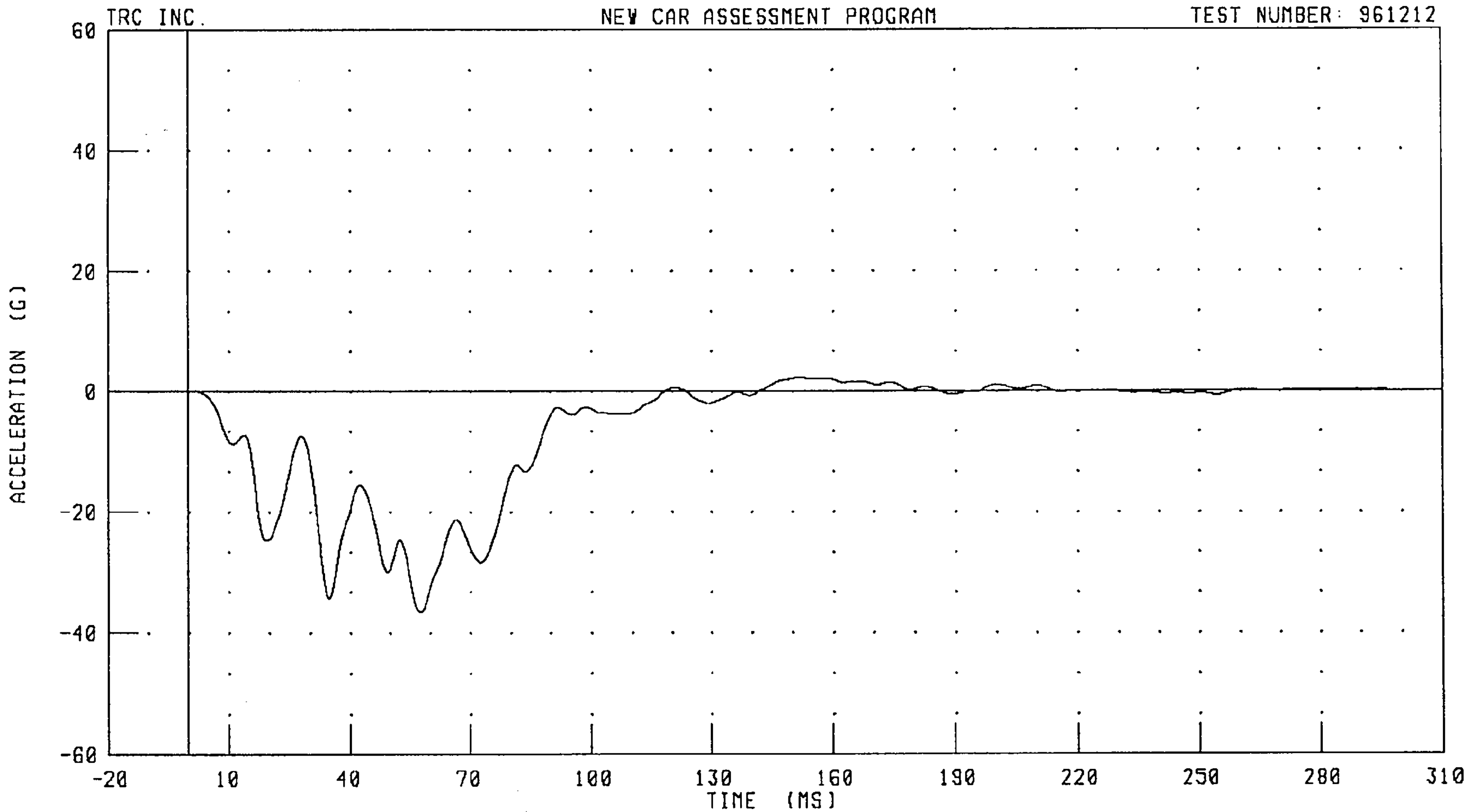
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT X-AXIS DISPLACEMENT
NEW CAR ASSESSMENT PROGRAM

TRC INC. TEST NUMBER: 961212



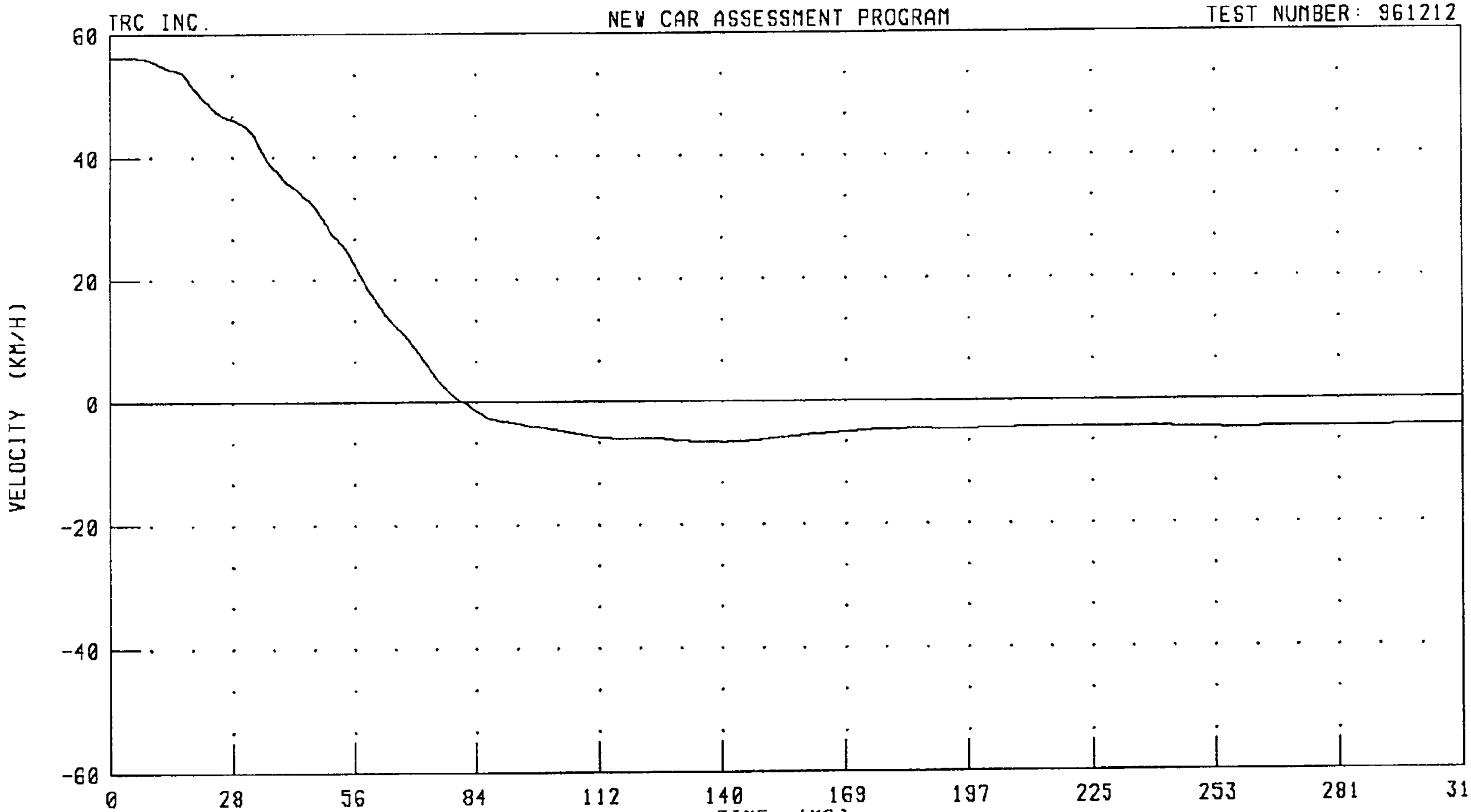
CHANNEL: TLRXD1 FILTER: CH. CLASS 180 PEAK DATA: 758.74 MM @ 81.60 MS; 0.00 MM @ 0.00 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM



CHANNEL: TRRXG1 FILTER: CH. CLASS 60 PEAK DATA: 2.28 G @ 151.84 MS; -36.63 G @ 57.60 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT X-AXIS VELOCITY
NEW CAR ASSESSMENT PROGRAM

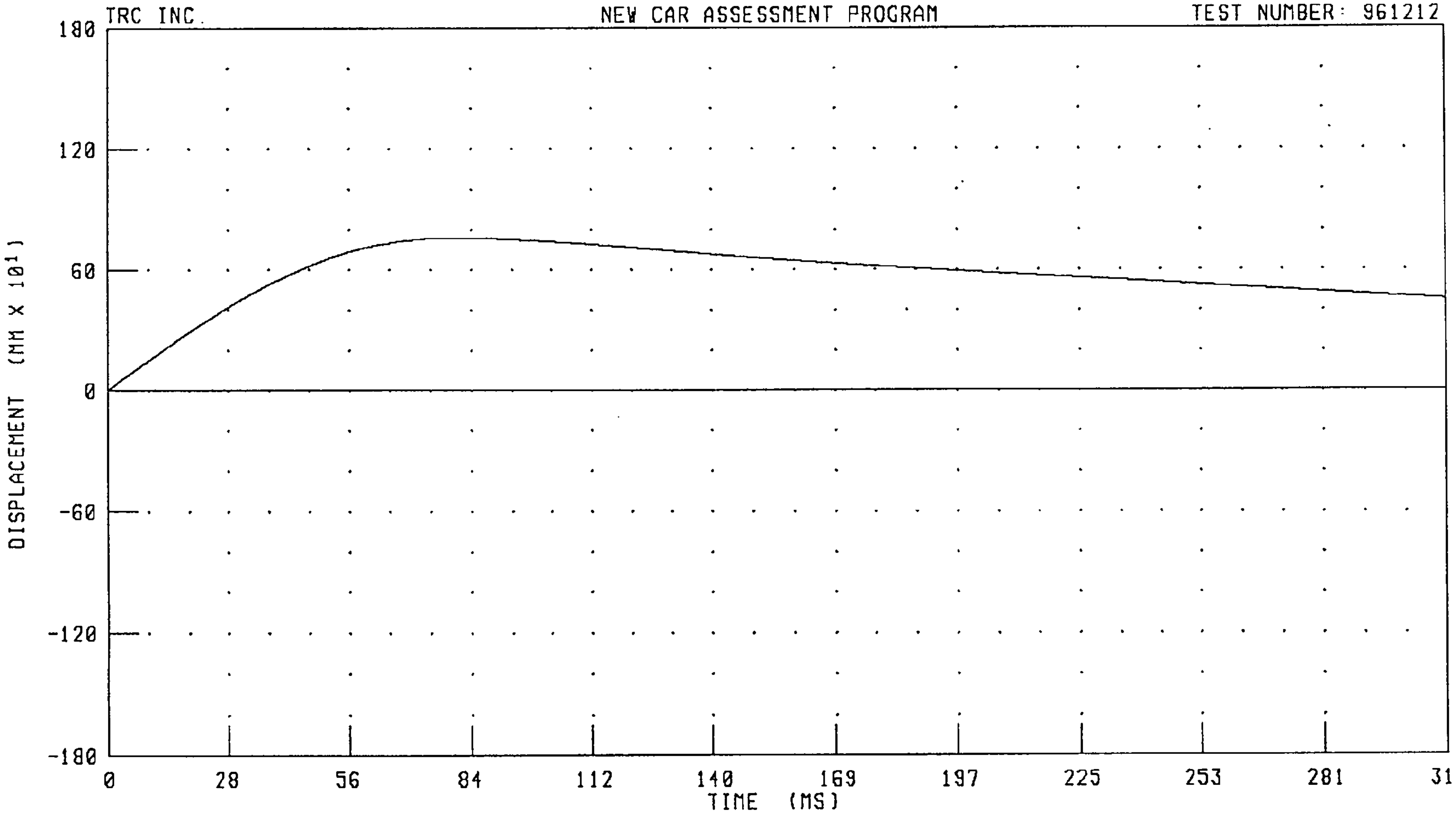


CHANNEL: TRRXV1 FILTER: CH. CLASS 180

PEAK DATA: 56.30 KM/H @ 1.20 MS; -6.70 KM/H @ 141.28 MS

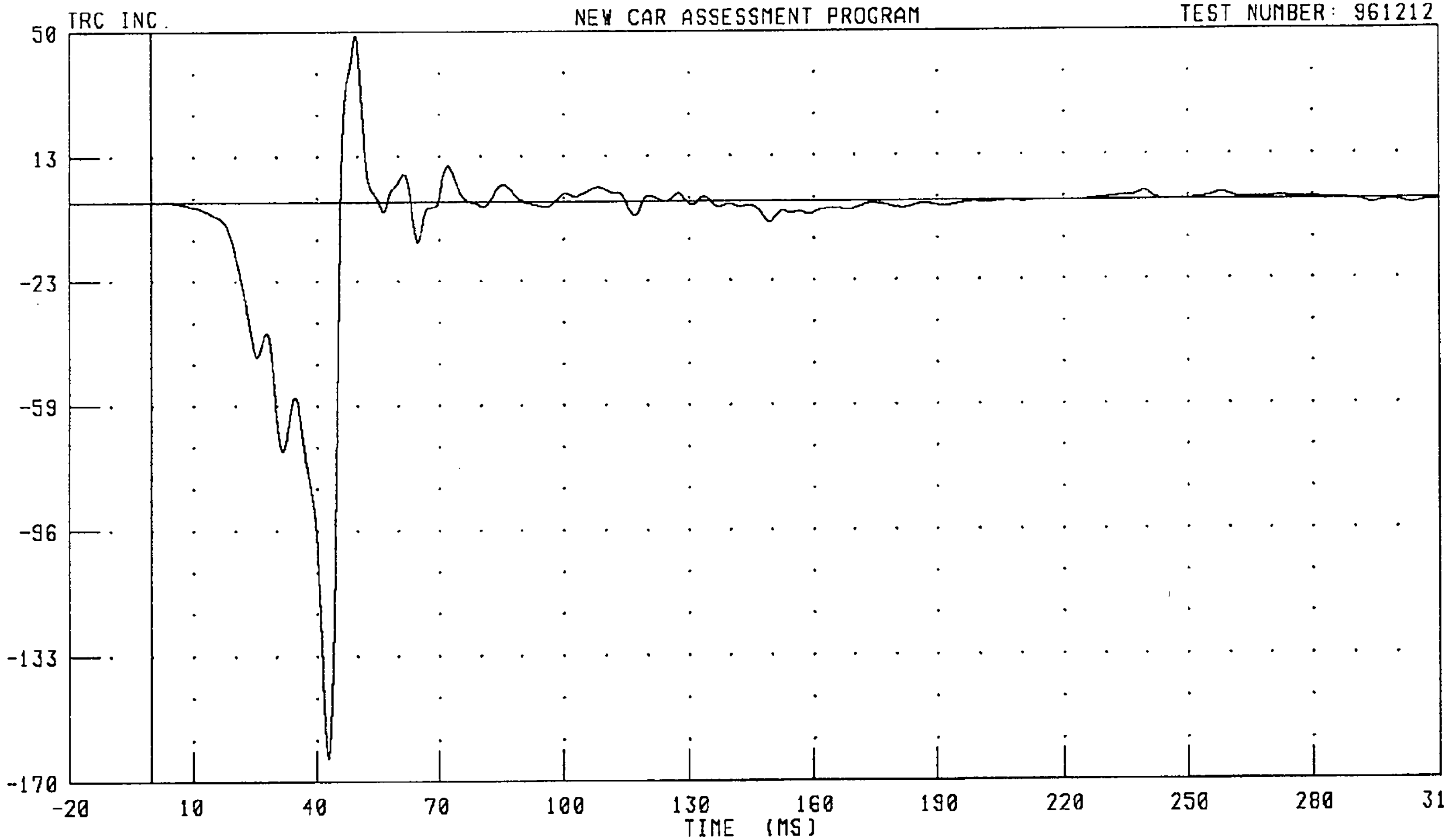
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT X-AXIS DISPLACEMENT
NEW CAR ASSESSMENT PROGRAM

TRC INC. TEST NUMBER: 961212

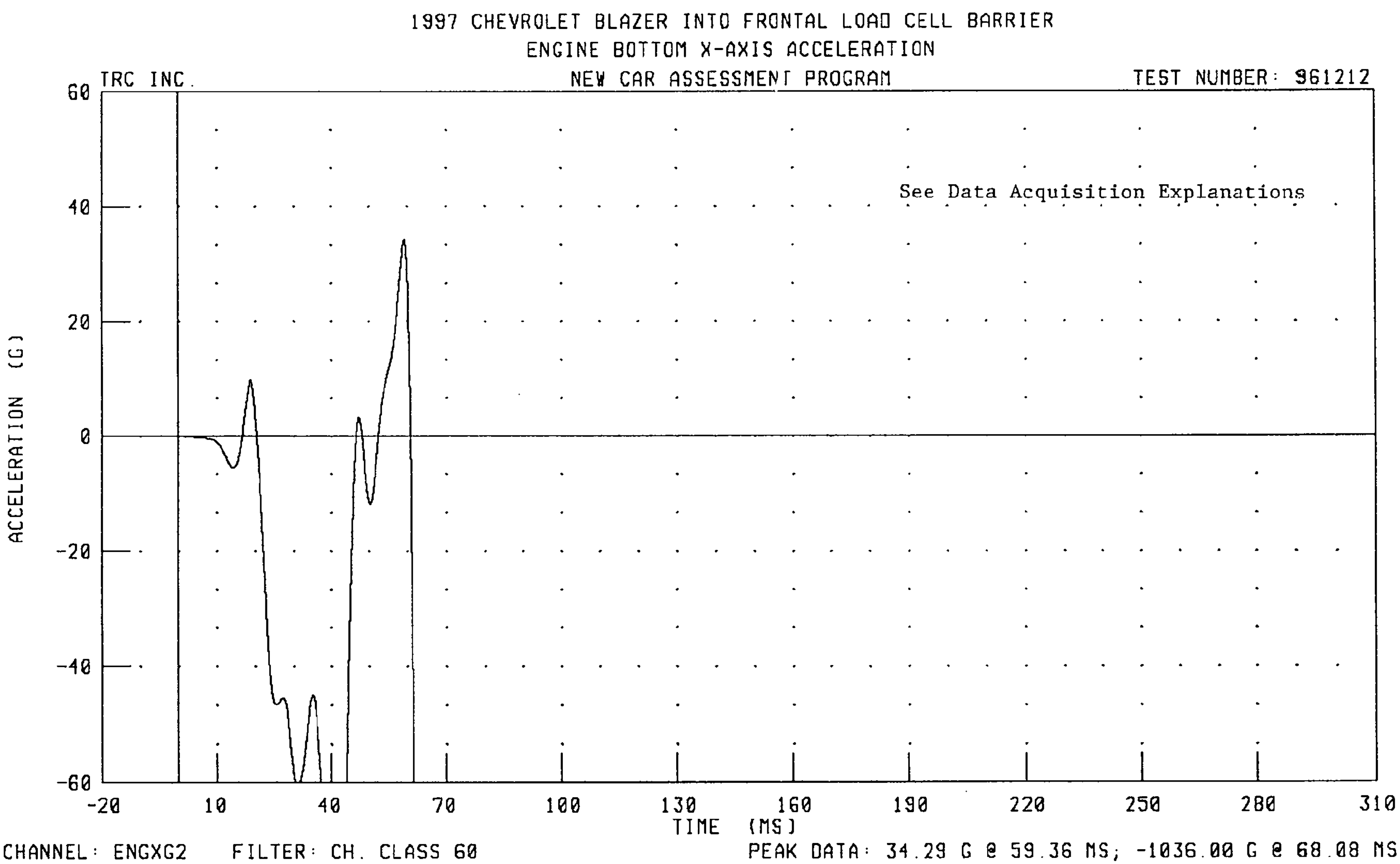


CHANNEL: TRRXD1 FILTER: CH. CLASS 180 PEAK DATA: 759.45 MM @ 81.60 MS; 0.00 MM @ 0.00 MS

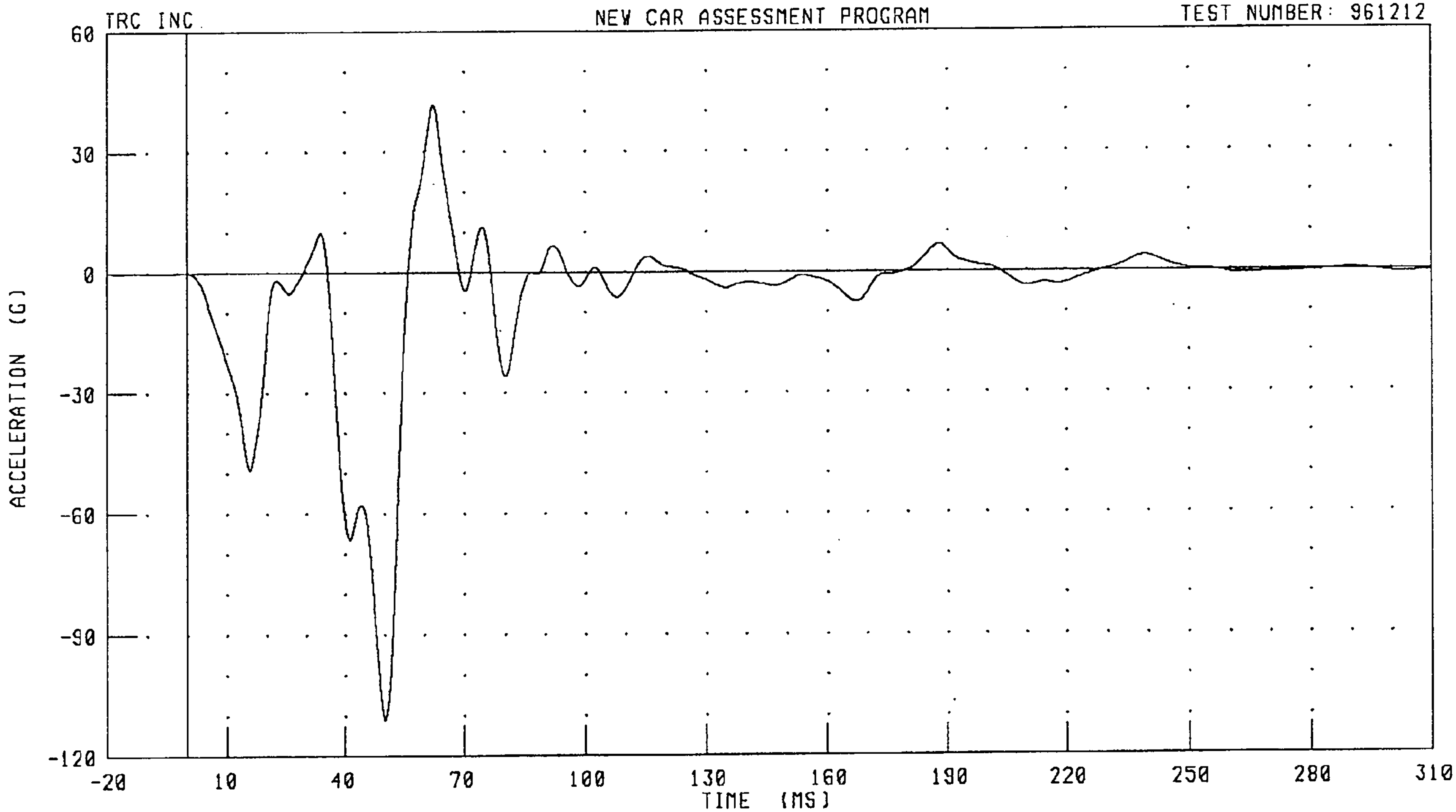
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
ENGINE TOP X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM



CHANNEL: ENGXG1 FILTER: CH. CLASS 60 PEAK DATA: 48.81 G @ 49.68 MS; -162.99 G @ 42.88 MS

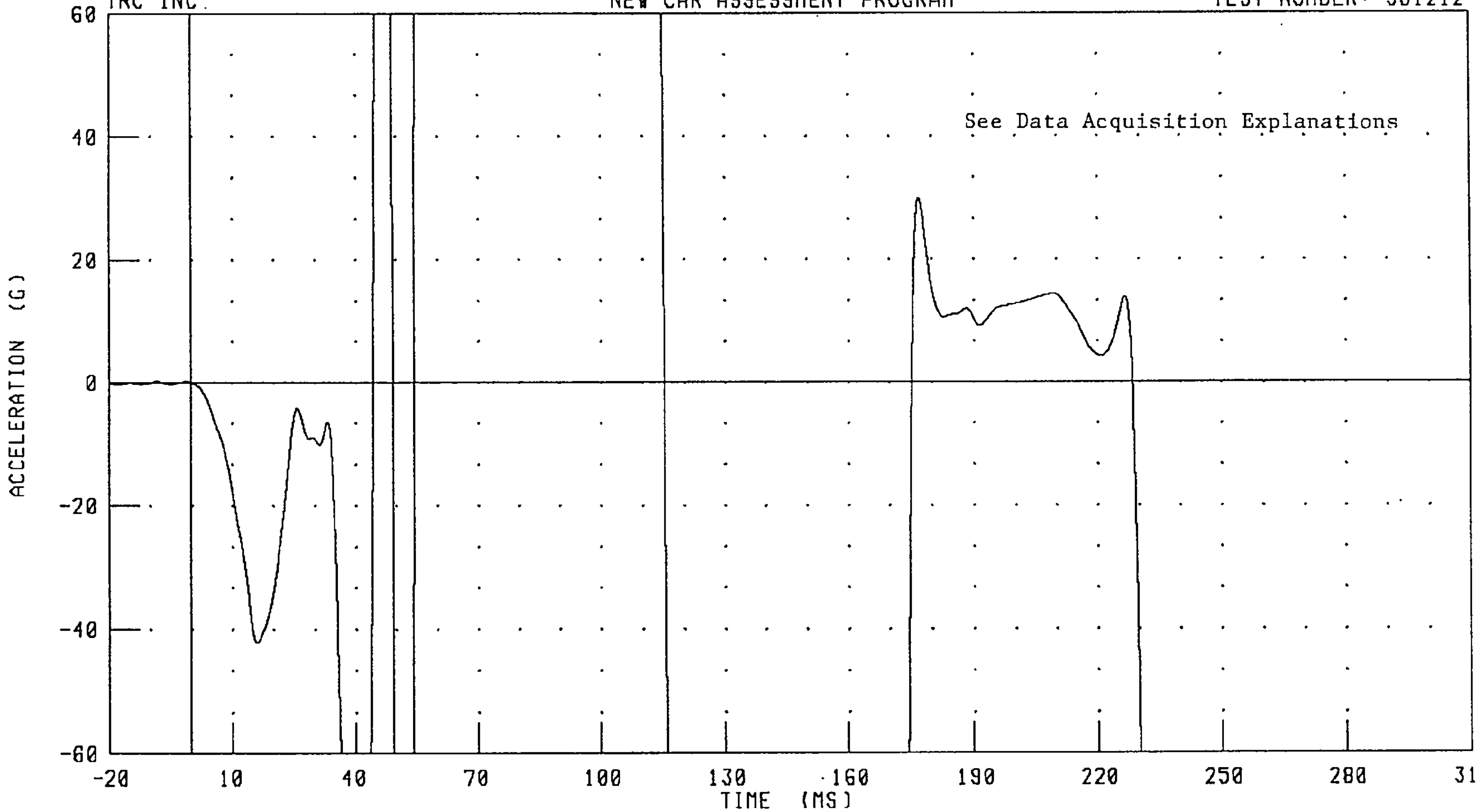

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
ENGINE BOTTOM X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 961212
See Data Acquisition Explanations
ACCELERATION (G)
60
40
20
0
-20
-40
-60
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: ENGXG2 FILTER: CH. CLASS 60
PEAK DATA: 34.29 G @ 59.36 MS; -1036.00 G @ 68.08 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
RIGHT BRAKE CALIPER X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM



CHANNEL: BCRXG1   FILTER: CH. CLASS 60   PEAK DATA: 41.53 G @ 62.56 MS; -111.08 G @ 50.16 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LEFT BRAKE CALIPER X-AXIS ACCELERATION
TRC INC. NEW CAR ASSESSMENT PROGRAM TEST NUMBER: 961212

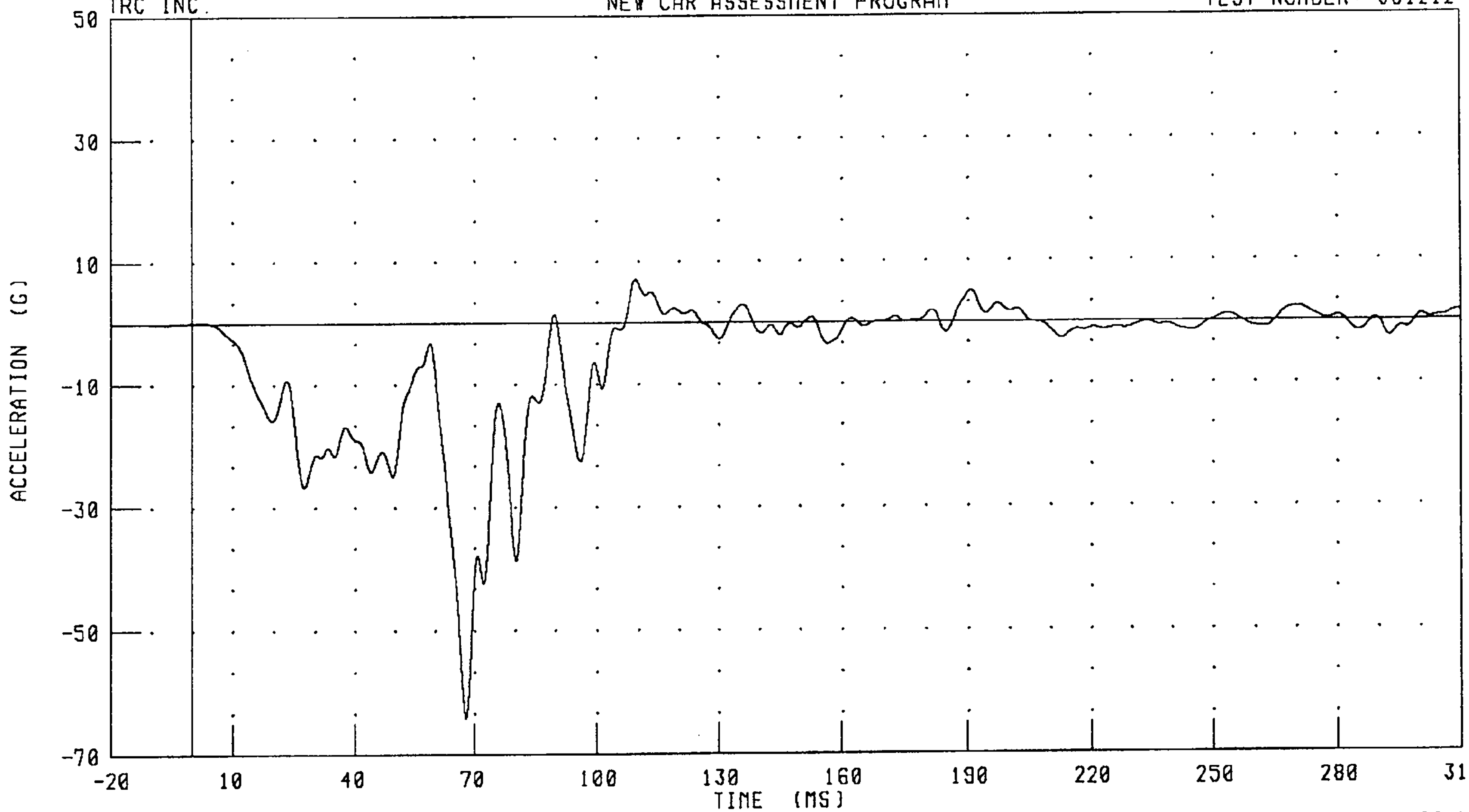


CHANNEL: BCLXG1 FILTER: CH. CLASS 60 PEAK DATA: 1039.73 G @ 108.80 MS; -1036.57 G @ 135.84 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
INSTRUMENT PANEL CENTER X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TRC INC.

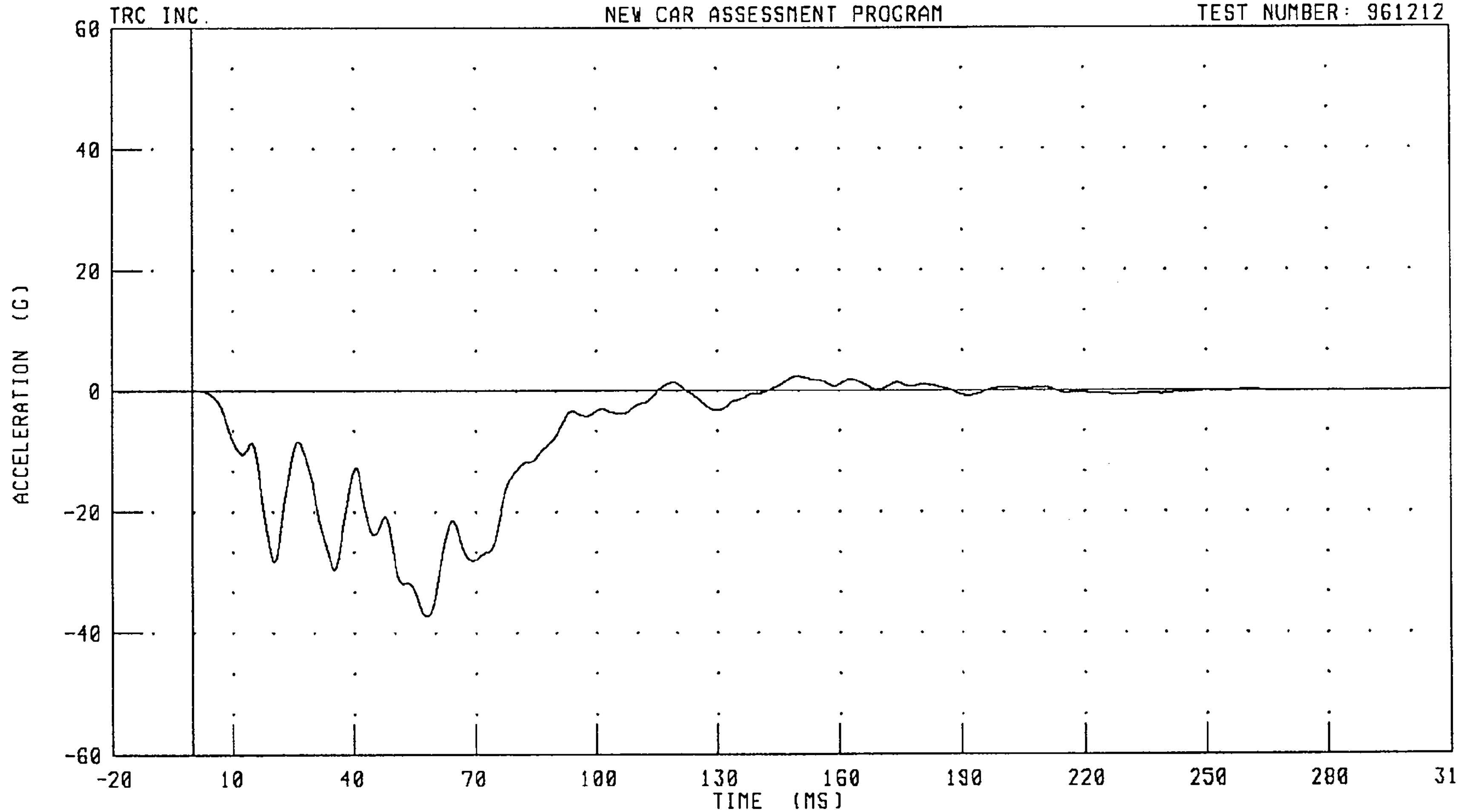
TEST NUMBER: 961212



CHANNEL: DPCXG1   FILTER: CH. CLASS 60

PEAK DATA: 7.11 G @ 109.44 MS; -64.20 G @ 67.92 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LEFT REAR SEAT REDUNDANT X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

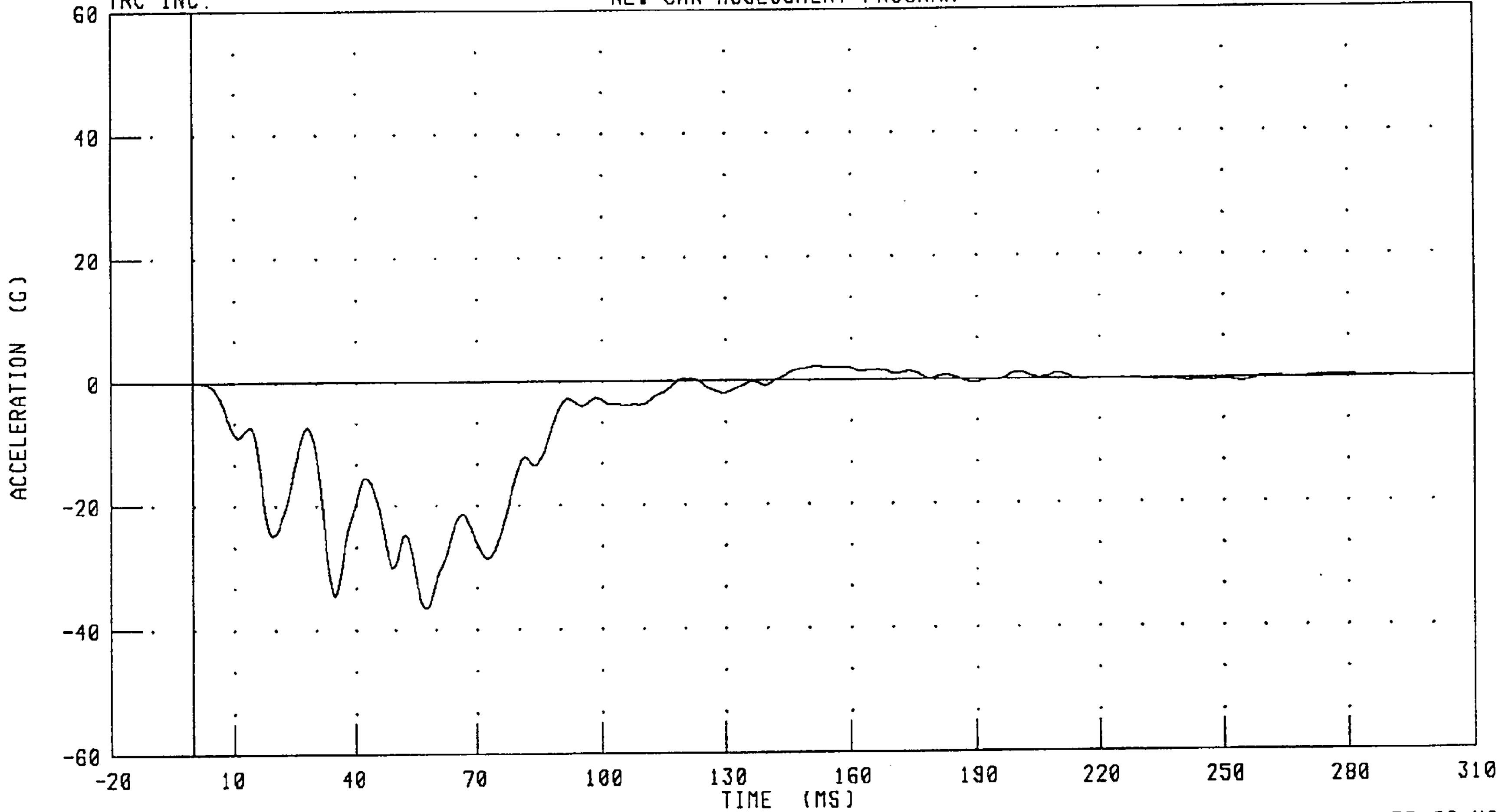


CHANNEL: TLRXGA FILTER: CH. CLASS 60 PEAK DATA: 2.36 G @ 149.84 MS; -37.26 G @ 57.84 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
RIGHT REAR SEAT REDUNDANT X-AXIS ACCELERATION
NEW CAR ASSESSMENT PROGRAM

TRC INC.

TEST NUMBER: 961212

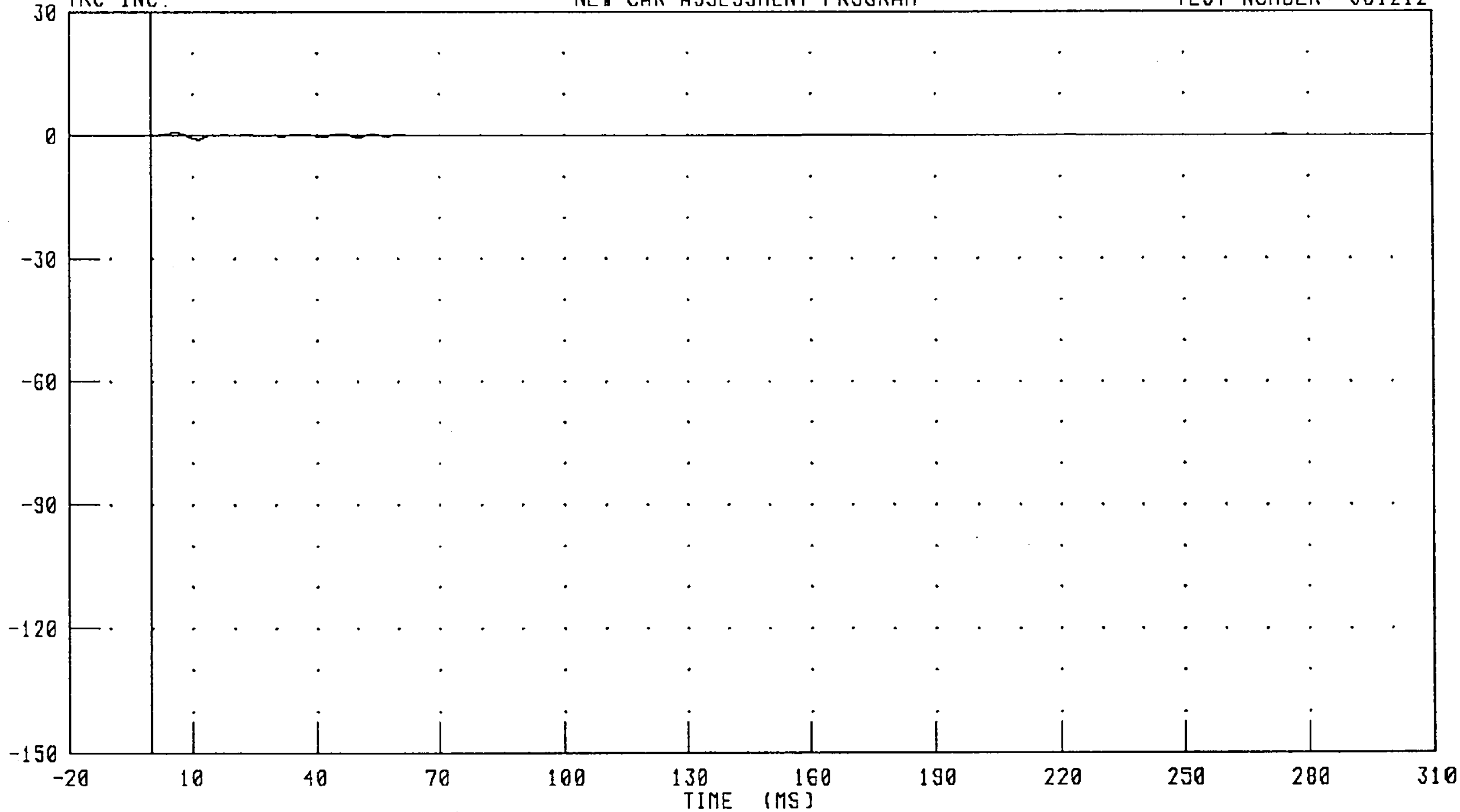


CHANNEL: TRRXGA   FILTER: CH. CLASS 60

PEAK DATA: 2.23 G @ 151.76 MS; -36.63 G @ 57.60 MS

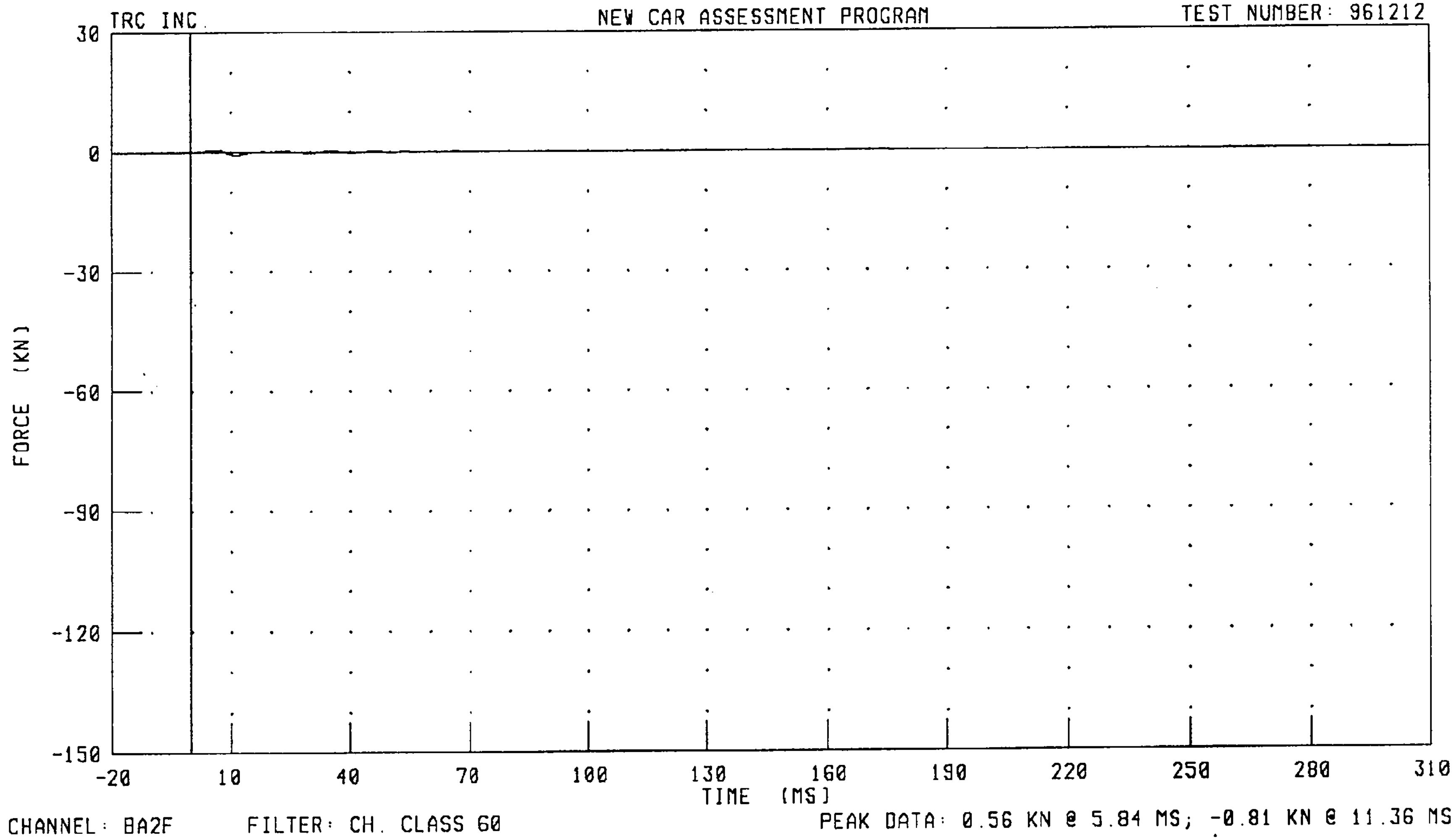
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A1 FORCE
NEW CAR ASSESSMENT PROGRAM

TRC INC. TEST NUMBER: 961212

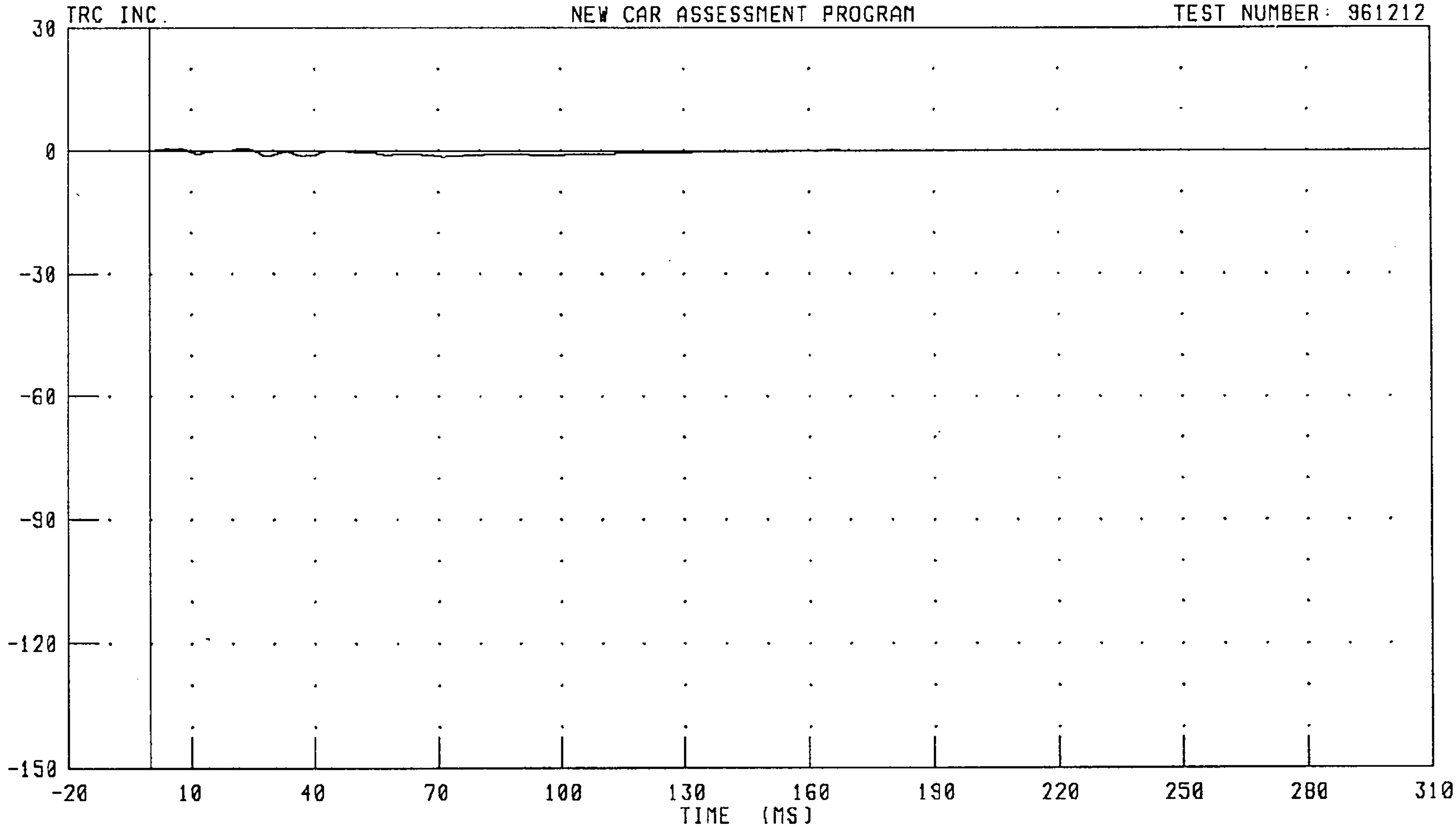


CHANNEL: BA1F FILTER: CH. CLASS 60 PEAK DATA: 0.68 KN @ 5.84 MS; -0.96 KN @ 11.36 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A2 FORCE
NEW CAR ASSESSMENT PROGRAM



1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A3 FORCE
NEW CAR ASSESSMENT PROGRAM

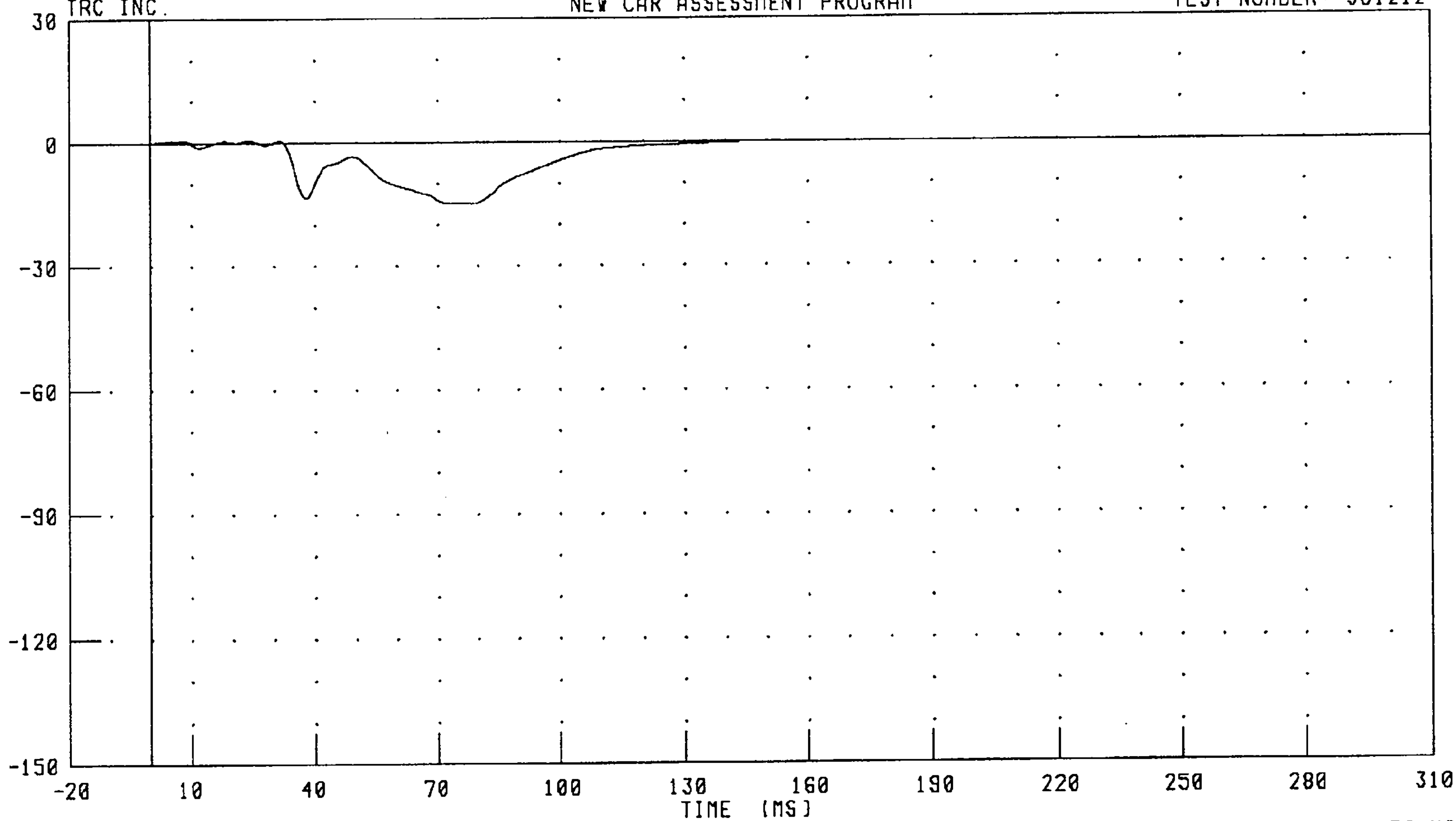


CHANNEL: BA3F FILTER: CH. CLASS 60 PEAK DATA: 0.50 KN @ 6.08 MS; -1.45 KN @ 71.44 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A4 FORCE
NEW CAR ASSESSMENT PROGRAM

TRC INC.

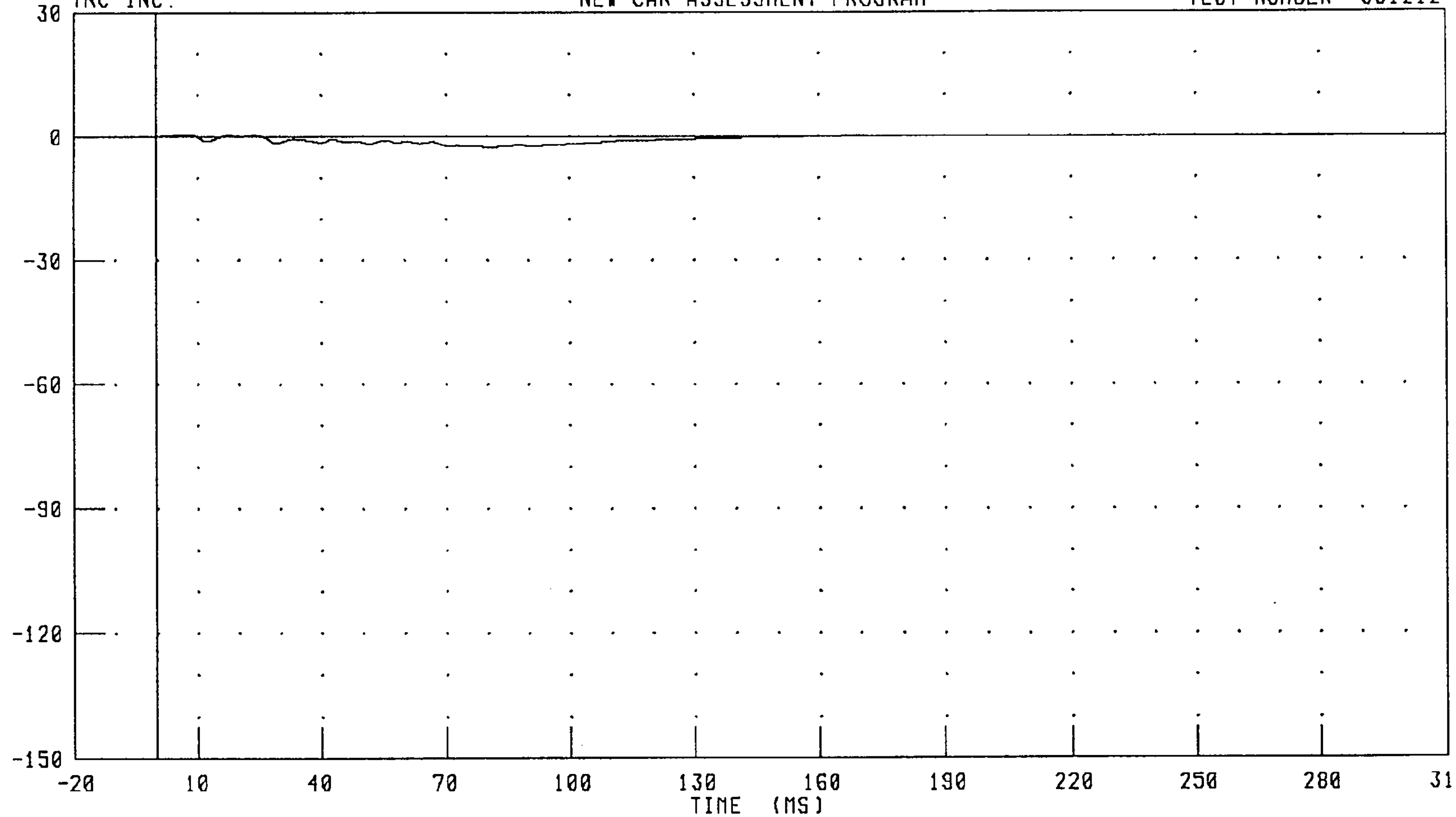
TEST NUMBER: 961212



CHANNEL: BA4F FILTER: CH. CLASS 60 PEAK DATA: 0.60 KN @ 7.68 MS; -14.90 KN @ 78.72 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A5 FORCE
NEW CAR ASSESSMENT PROGRAM

TRC INC. TEST NUMBER: 961212

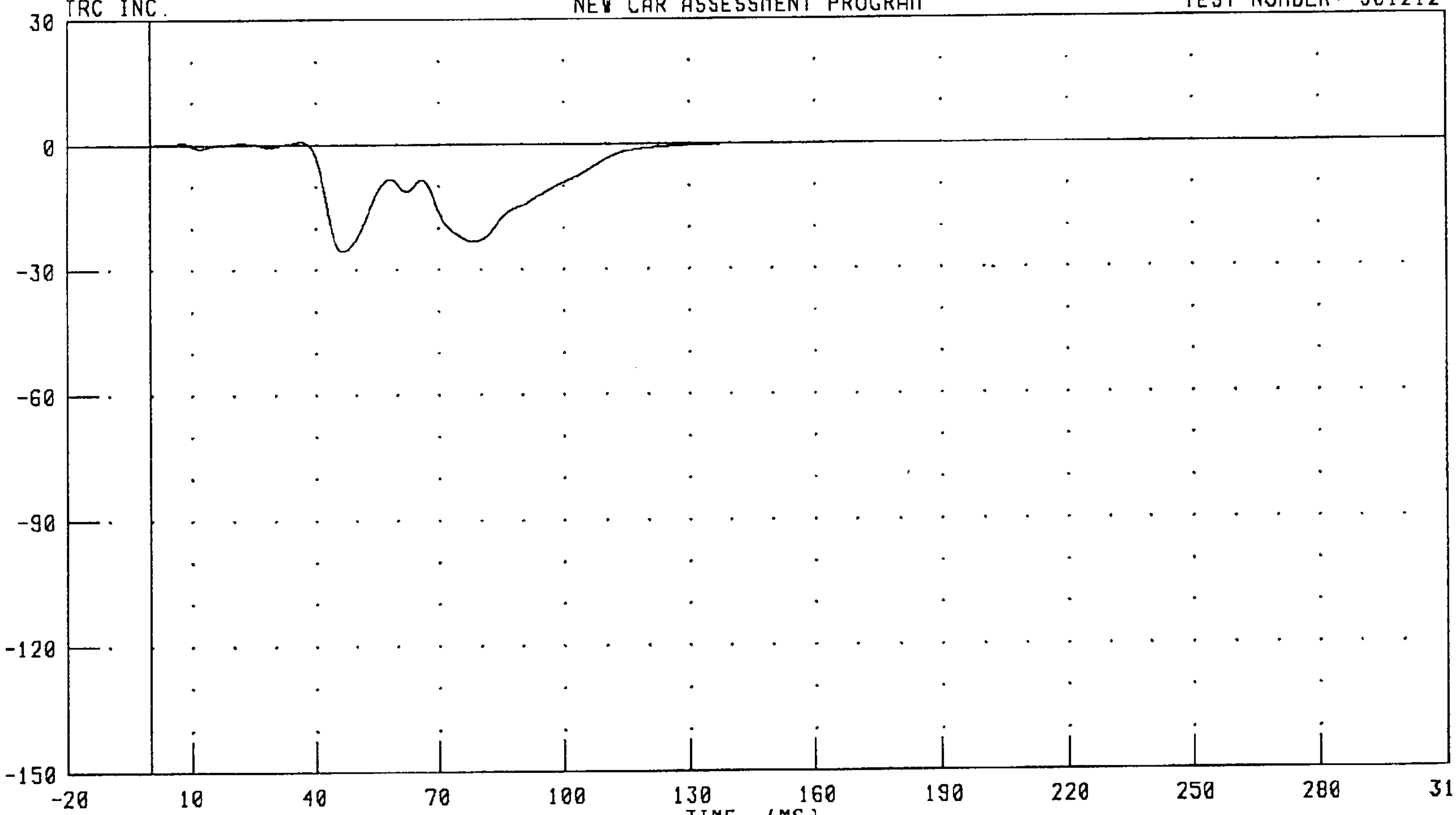


CHANNEL: BA5F FILTER: CH. CLASS 60 PEAK DATA: 0.55 KN @ 8.08 MS; -2.49 KN @ 81.12 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A6 FORCE
NEW CAR ASSESSMENT PROGRAM

TRC INC.

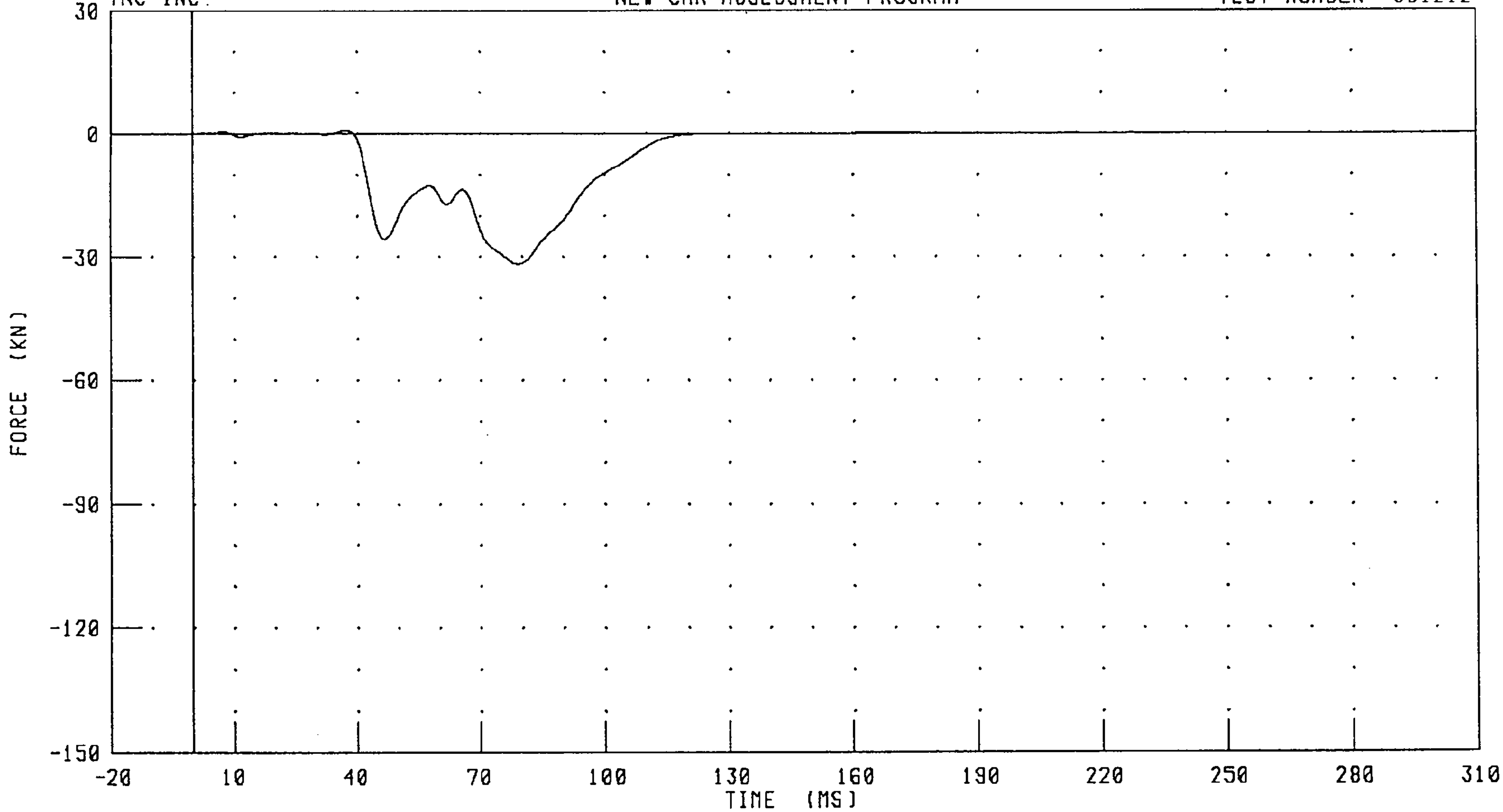
TEST NUMBER: 961212



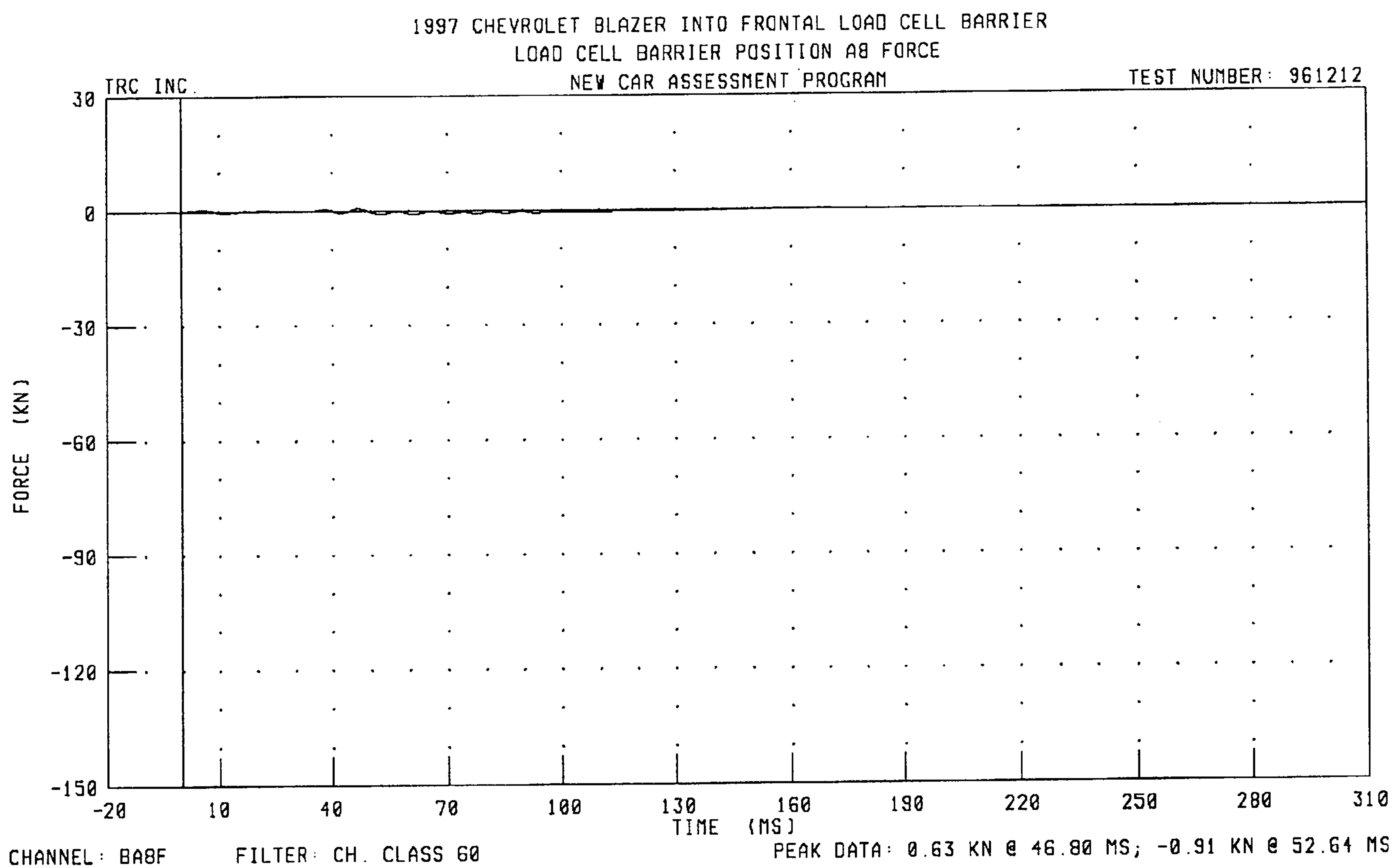
CHANNEL: BA6F   FILTER: CH. CLASS 60   PEAK DATA: 0.70 KN @ 36.48 MS; -25.55 KN @ 46.88 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A7 FORCE
NEW CAR ASSESSMENT PROGRAM

TRC INC. TEST NUMBER: 961212



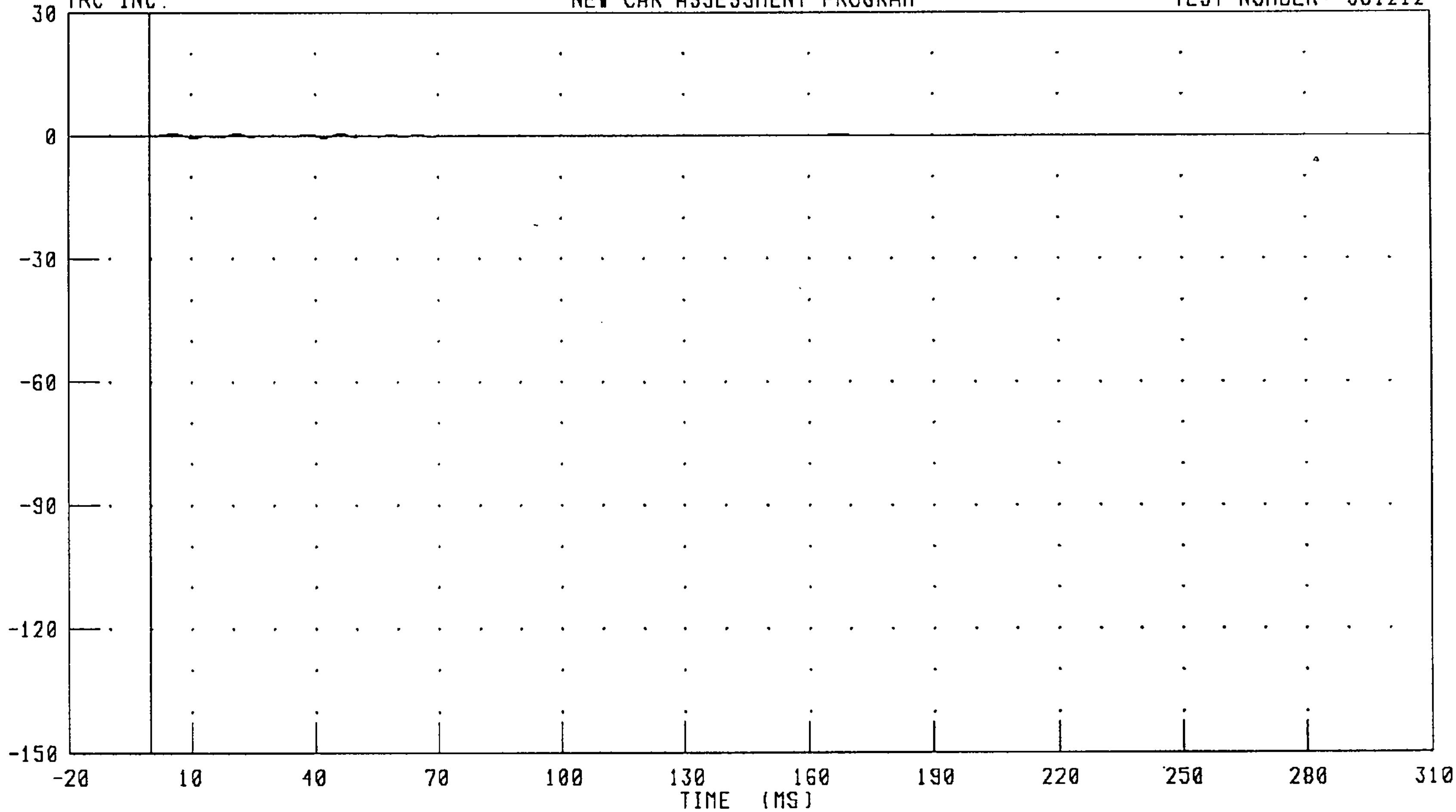
CHANNEL: BA7F FILTER: CH. CLASS 60 PEAK DATA: 0.70 KN @ 37.20 MS; -31.68 KN @ 79.20 MS


1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A8 FORCE
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 961212
FORCE (KN)
30
0
-30
-60
-90
-120
-150
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BA8F
FILTER: CH. CLASS 60
PEAK DATA: 0.63 KN @ 46.80 MS; -0.91 KN @ 52.64 MS

961212

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION A9 FORCE
NEW CAR ASSESSMENT PROGRAM

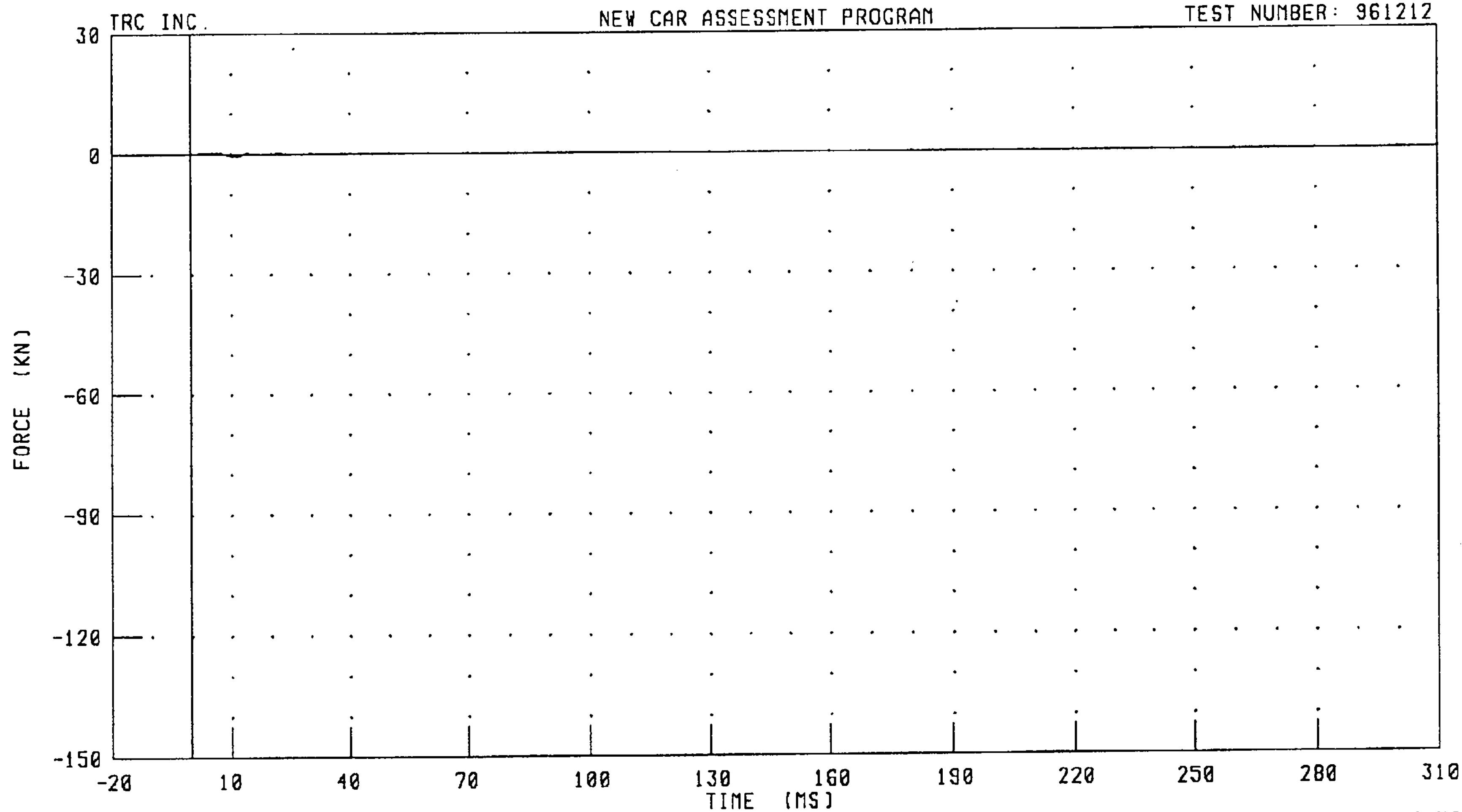
TRC INC. TEST NUMBER: 961212



CHANNEL: BA9F FILTER: CH. CLASS 60 PEAK DATA: 0.49 KN @ 21.12 MS; -0.58 KN @ 10.88 MS

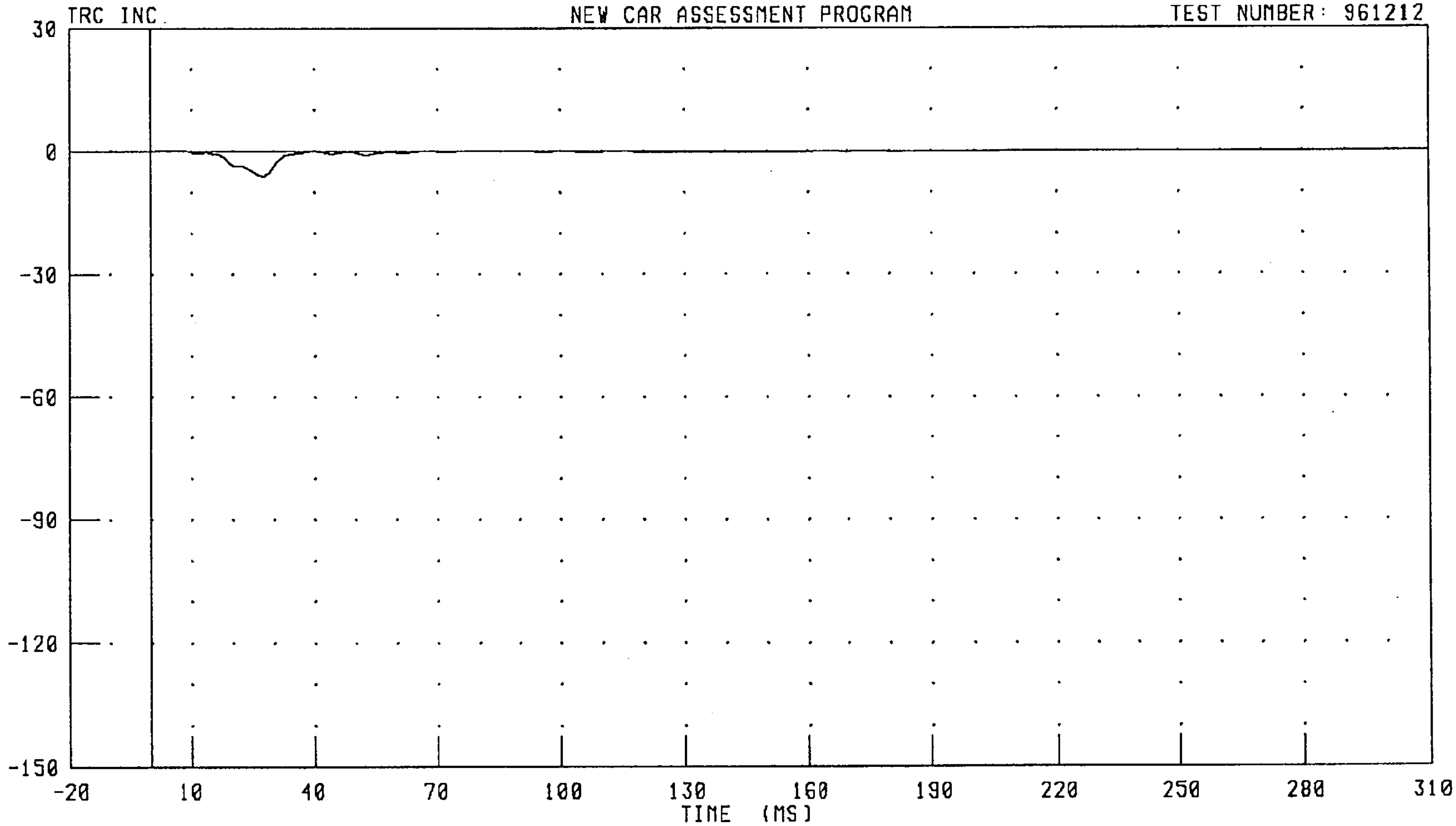
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B1 FORCE
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961212



CHANNEL: BB1F FILTER: CH. CLASS 60 PEAK DATA: 0.33 KN @ 4.88 MS; -0.65 KN @ 11.20 MS

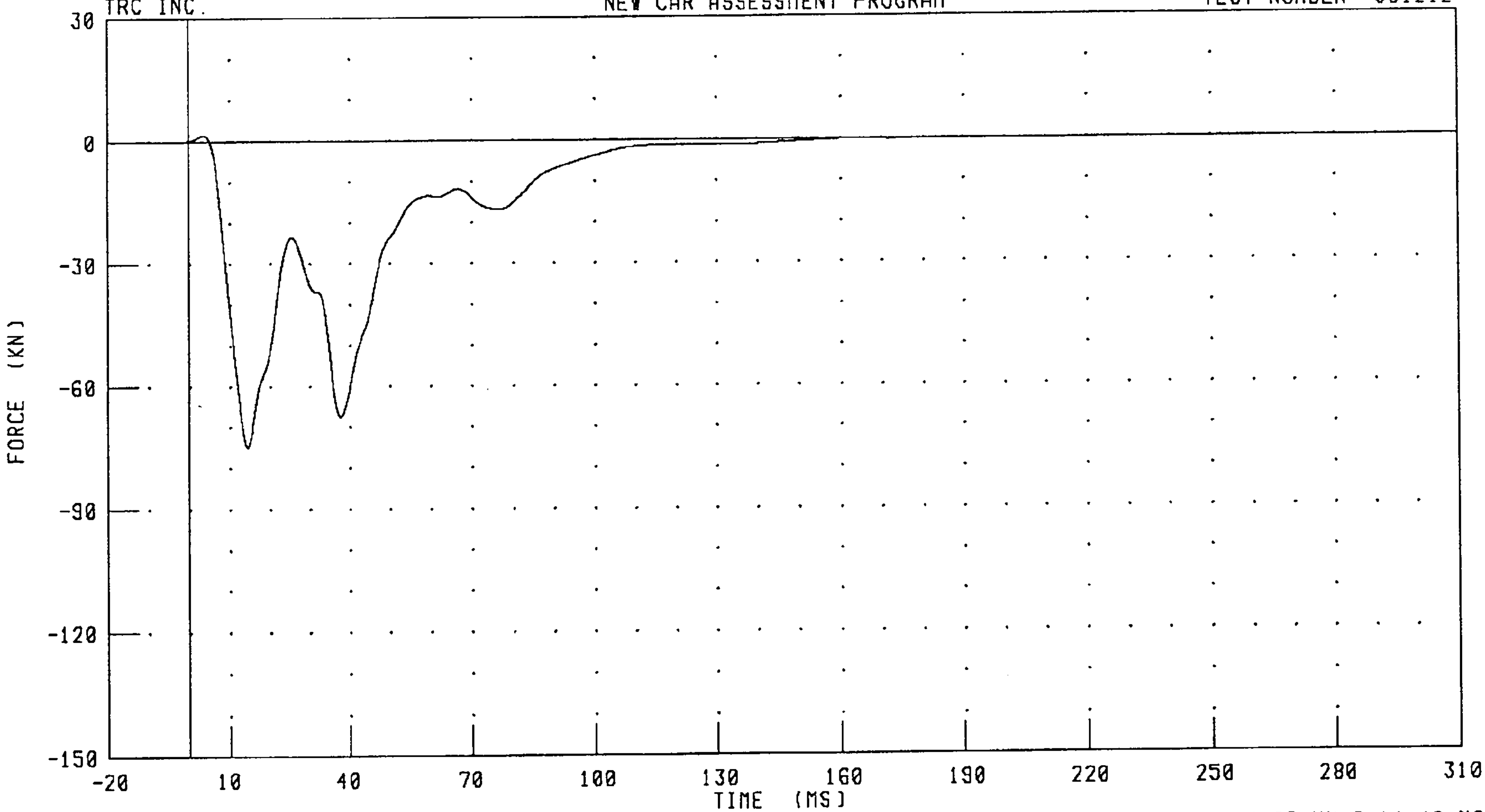
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B2 FORCE
NEW CAR ASSESSMENT PROGRAM



CHANNEL: BB2F FILTER: CH. CLASS 60 PEAK DATA: 0.33 KN @ 5.52 MS; -6.08 KN @ 27.52 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B3 FORCE
NEW CAR ASSESSMENT PROGRAM

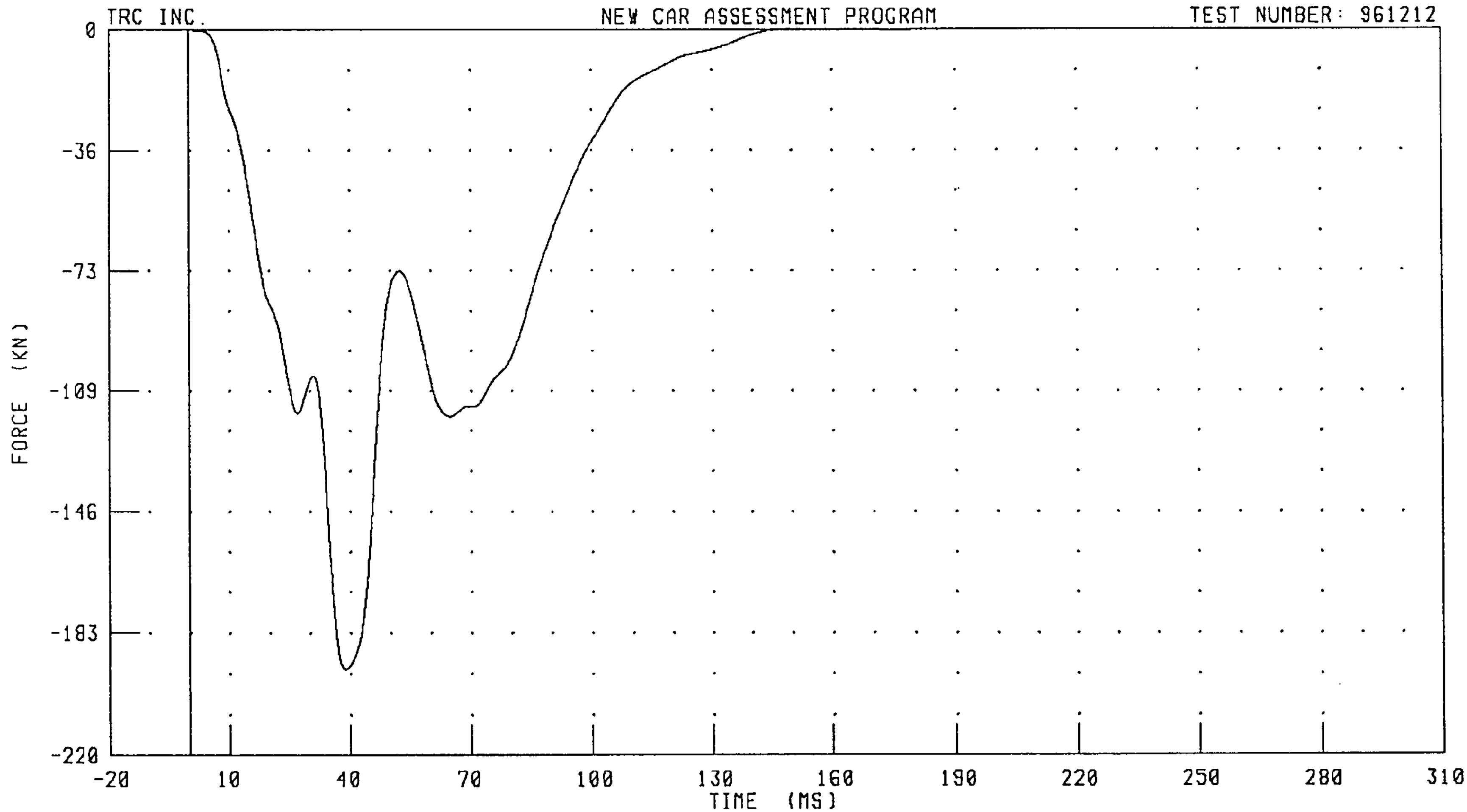
TRC INC. TEST NUMBER: 961212



CHANNEL: BB3F FILTER: CH. CLASS 60 PEAK DATA: 1.46 KN @ 3.52 MS; -74.88 KN @ 14.40 MS

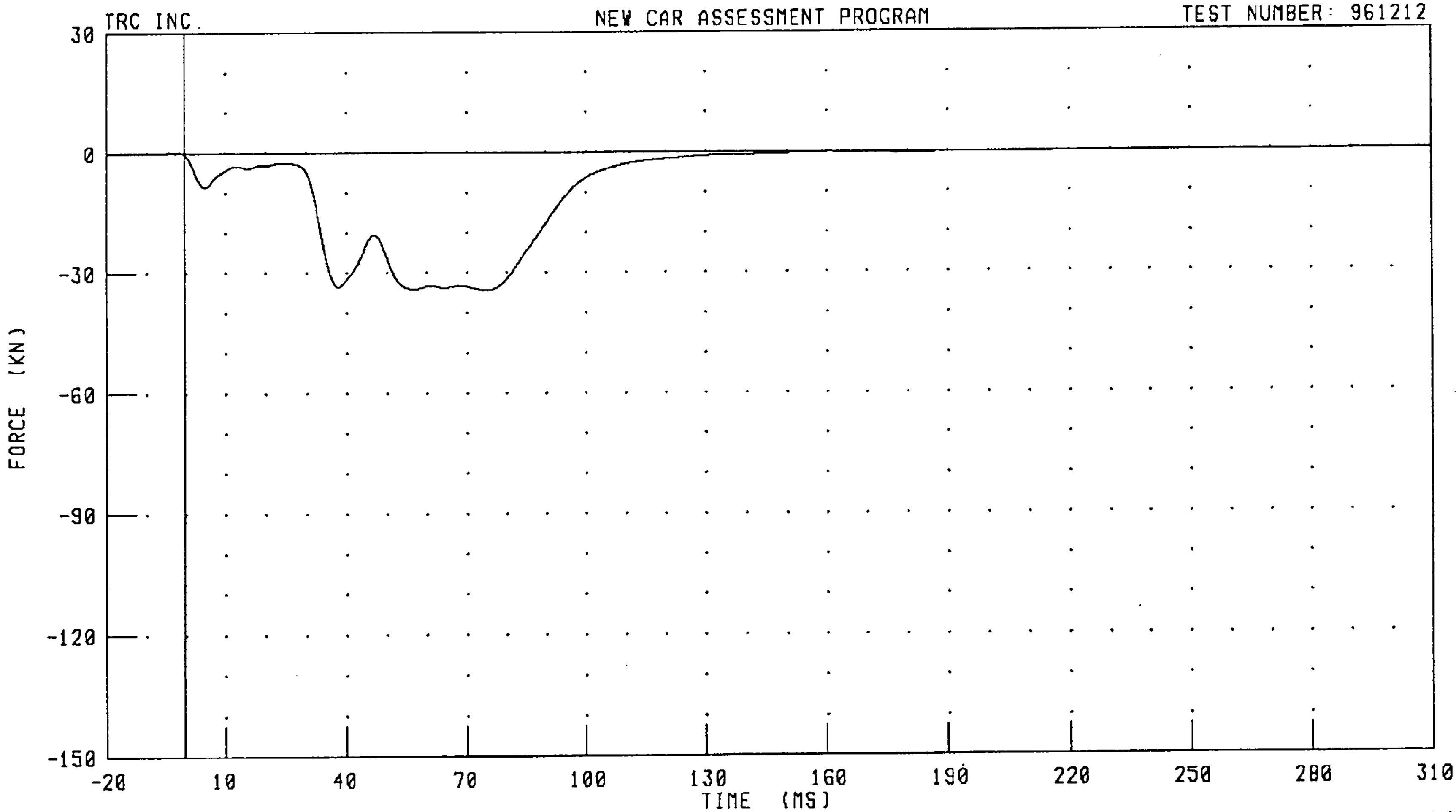
961212

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B4 FORCE
NEW CAR ASSESSMENT PROGRAM



CHANNEL: BB4F FILTER: CH. CLASS 60 PEAK DATA: 0.73 KN @ 160.88 MS; -194.31 KN @ 38.88 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B5 FORCE
NEW CAR ASSESSMENT PROGRAM



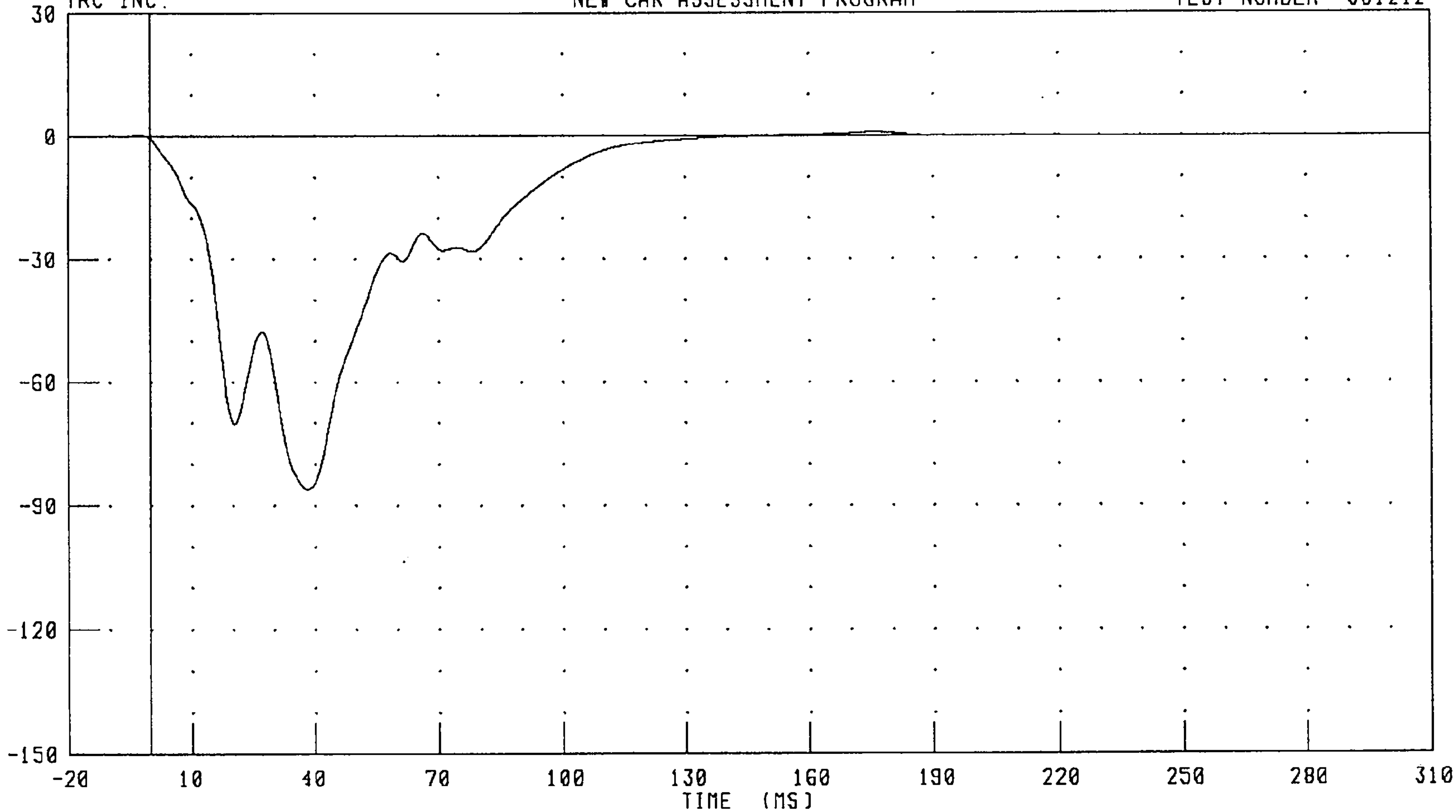
CHANNEL: BB5F FILTER: CH. CLASS 60 PEAK DATA: 0.27 KN @ -2.16 MS; -34.42 KN @ 75.04 MS

961212

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B6 FORCE
NEW CAR ASSESSMENT PROGRAM

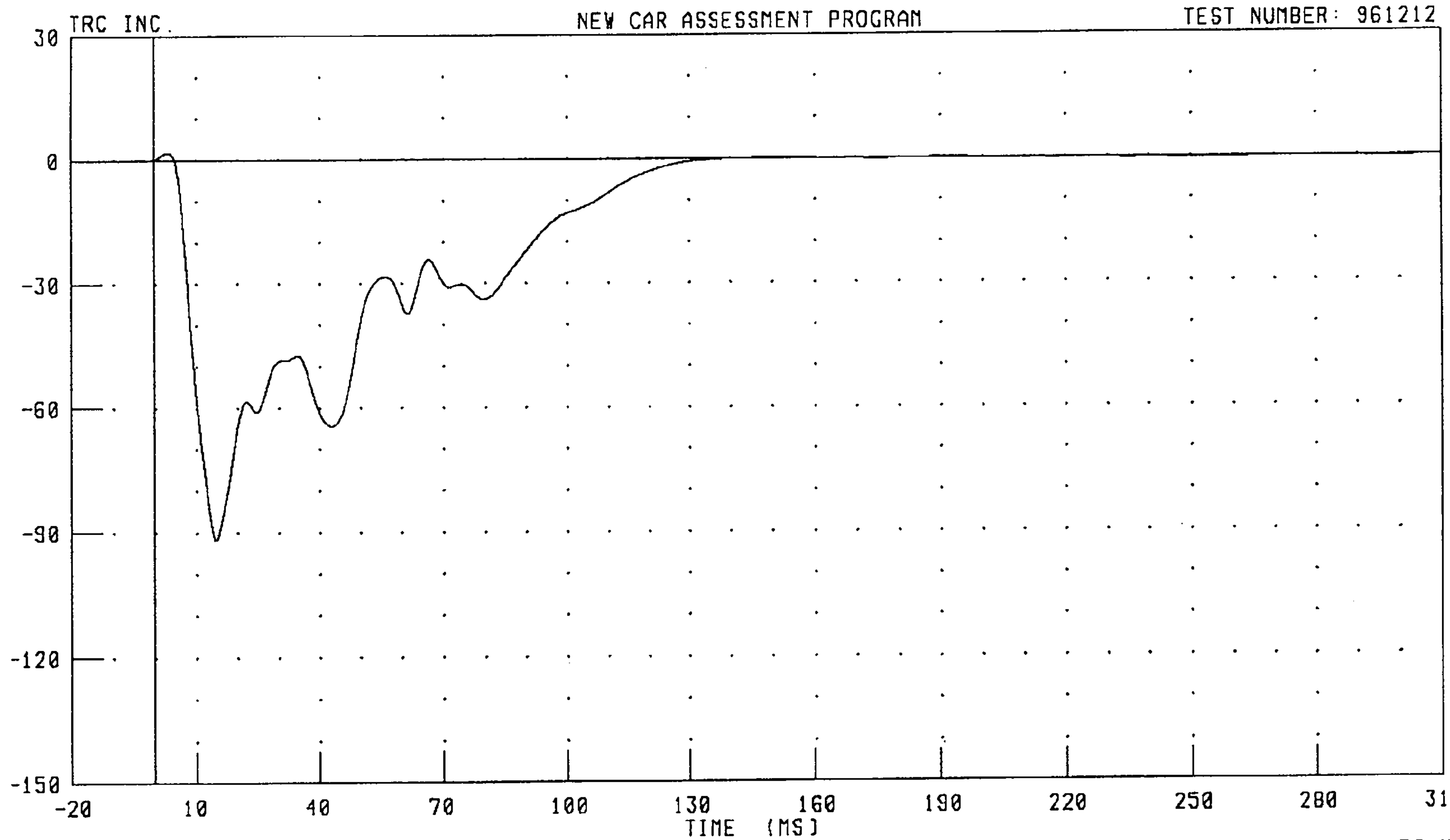
TRC INC.

TEST NUMBER: 961212



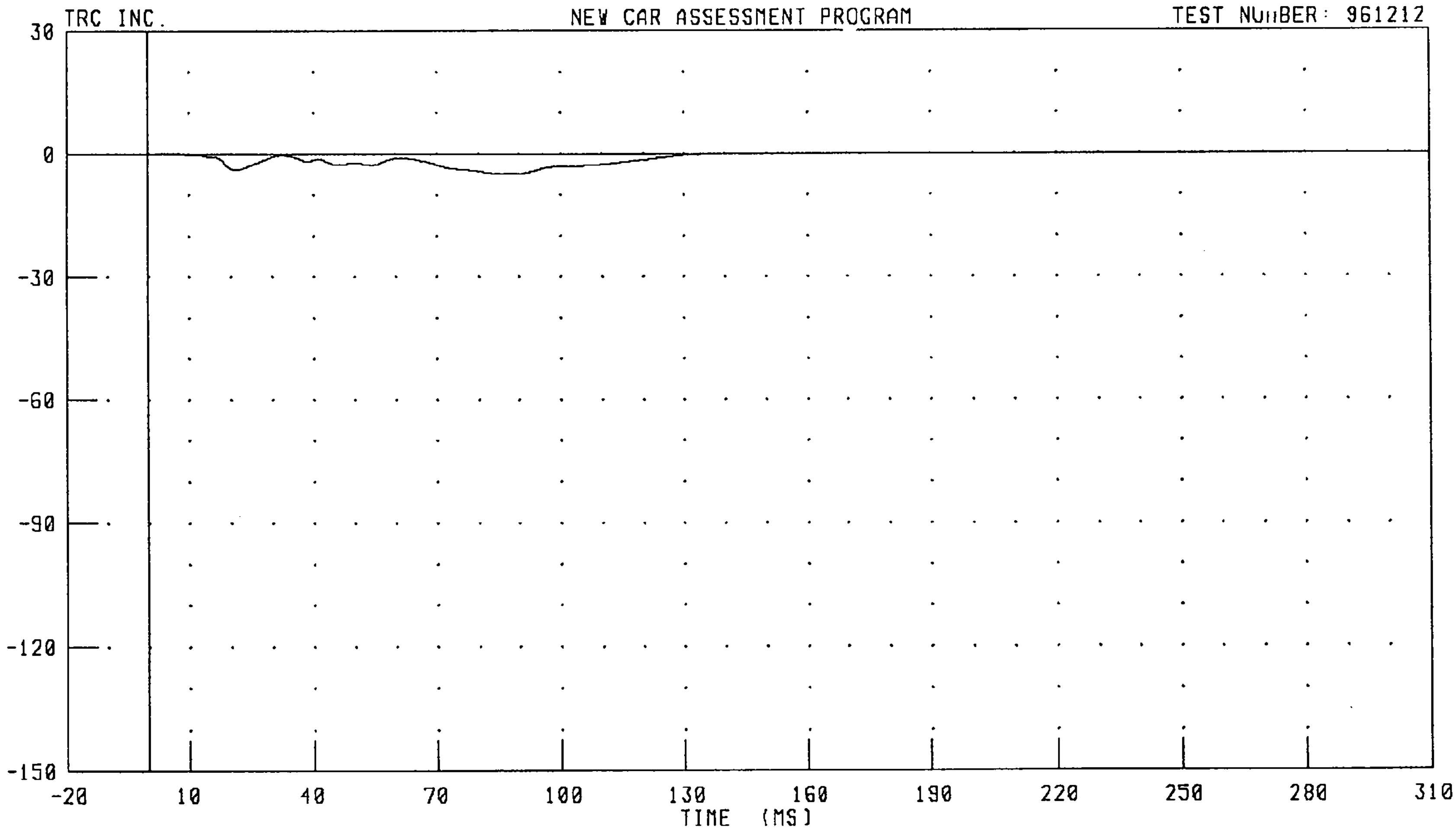
CHANNEL: BB6F FILTER: CH. CLASS 60 PEAK DATA: 0.90 KN @ 175.84 MS; -86.04 KN @ 38.32 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B7 FORCE
NEW CAR ASSESSMENT PROGRAM



CHANNEL: BB7F FILTER: CH. CLASS 60 PEAK DATA: 1.82 KN @ 3.28 MS; -91.85 KN @ 14.72 MS

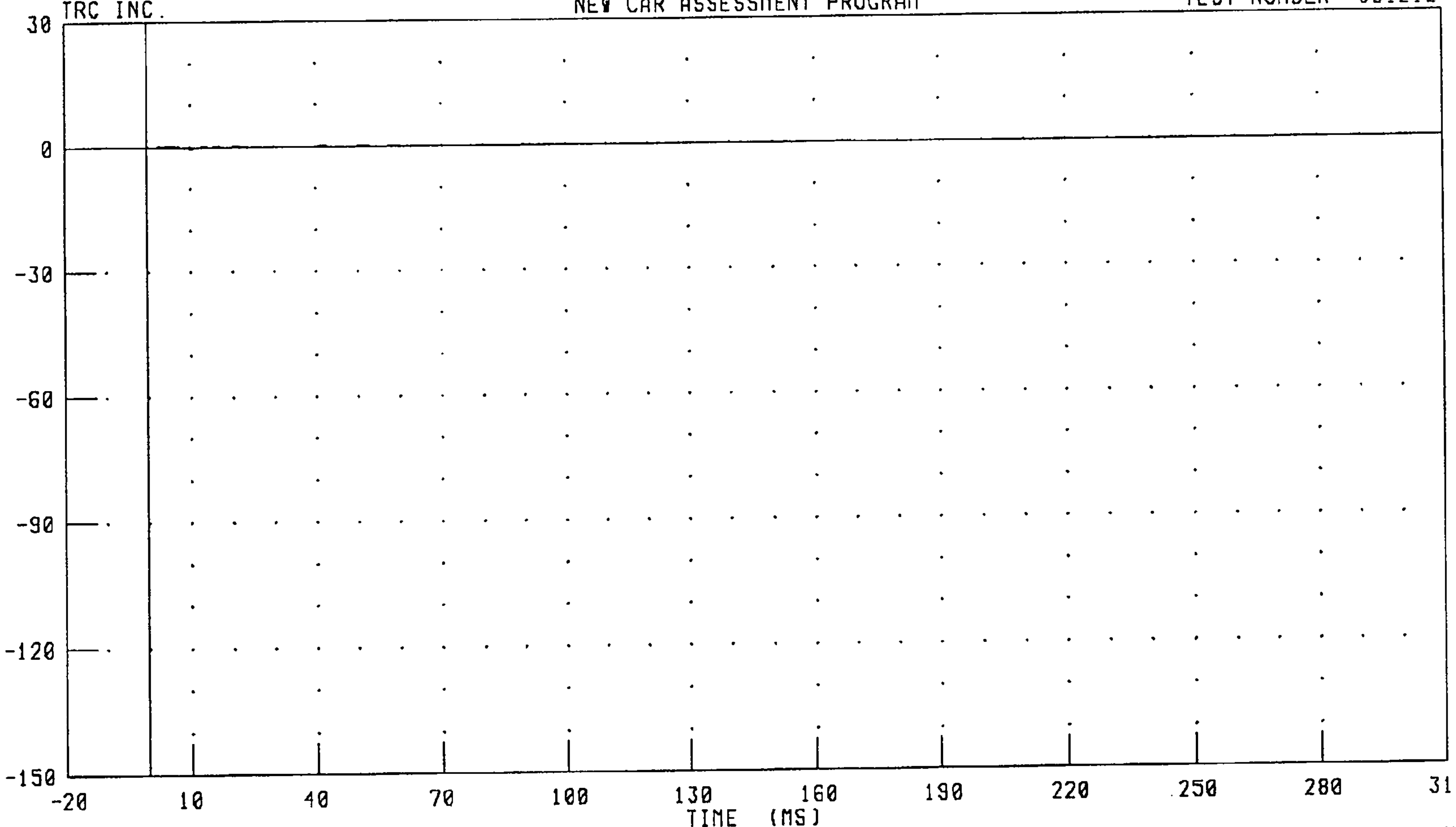
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B8 FORCE
NEW CAR ASSESSMENT PROGRAM



CHANNEL: B8F FILTER: CH. CLASS 60 PEAK DATA: 0.15 KN @ 4.32 MS; -4.91 KN @ 89.20 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION B9 FORCE
NEW CAR ASSESSMENT PROGRAM

TRC INC. TEST NUMBER: 961212

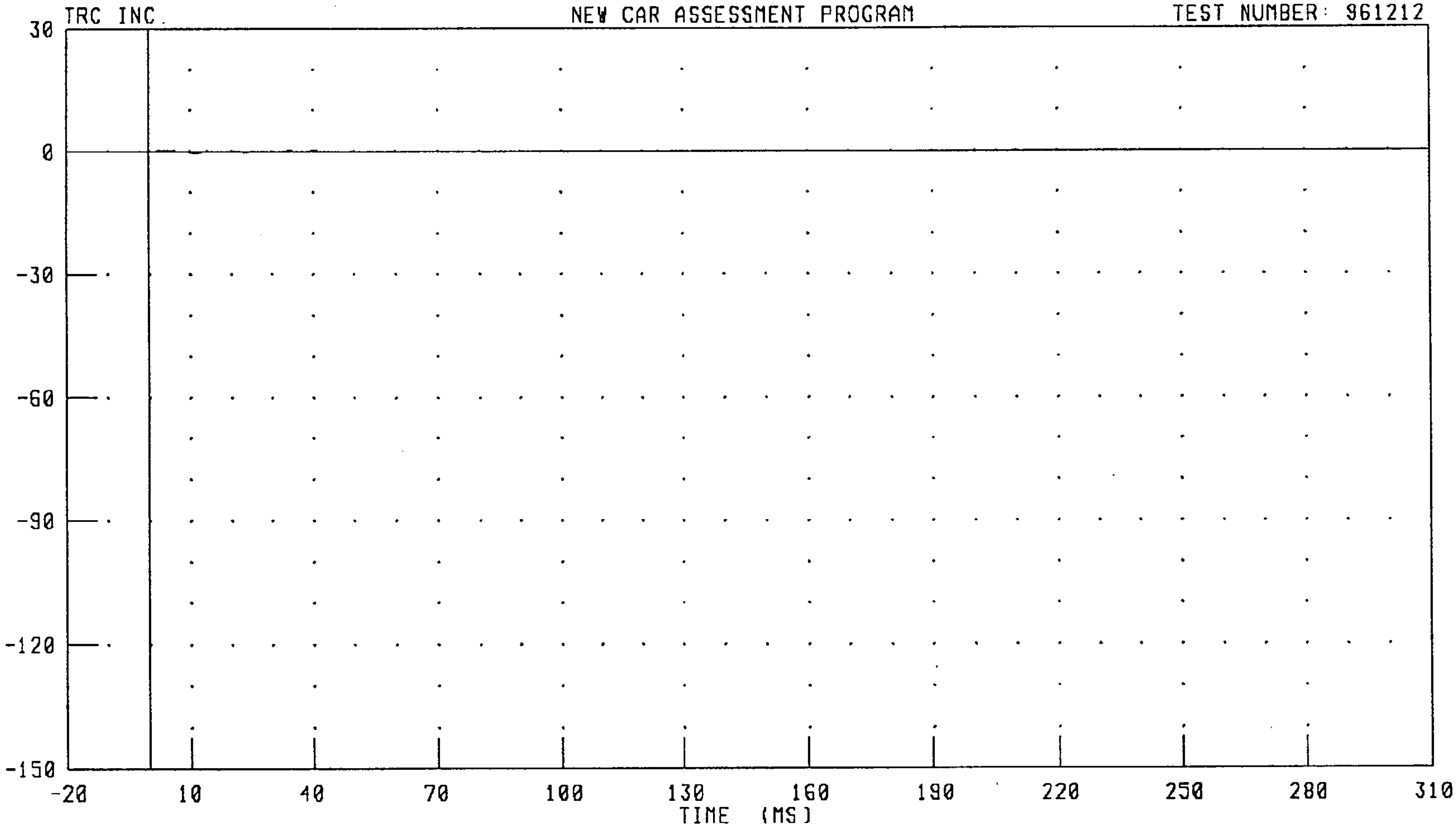


CHANNEL: BB9F FILTER: CH. CLASS 60 PEAK DATA: 0.23 KN @ 5.28 MS; -0.44 KN @ 10.48 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C1 FORCE
NEW CAR ASSESSMENT PROGRAM

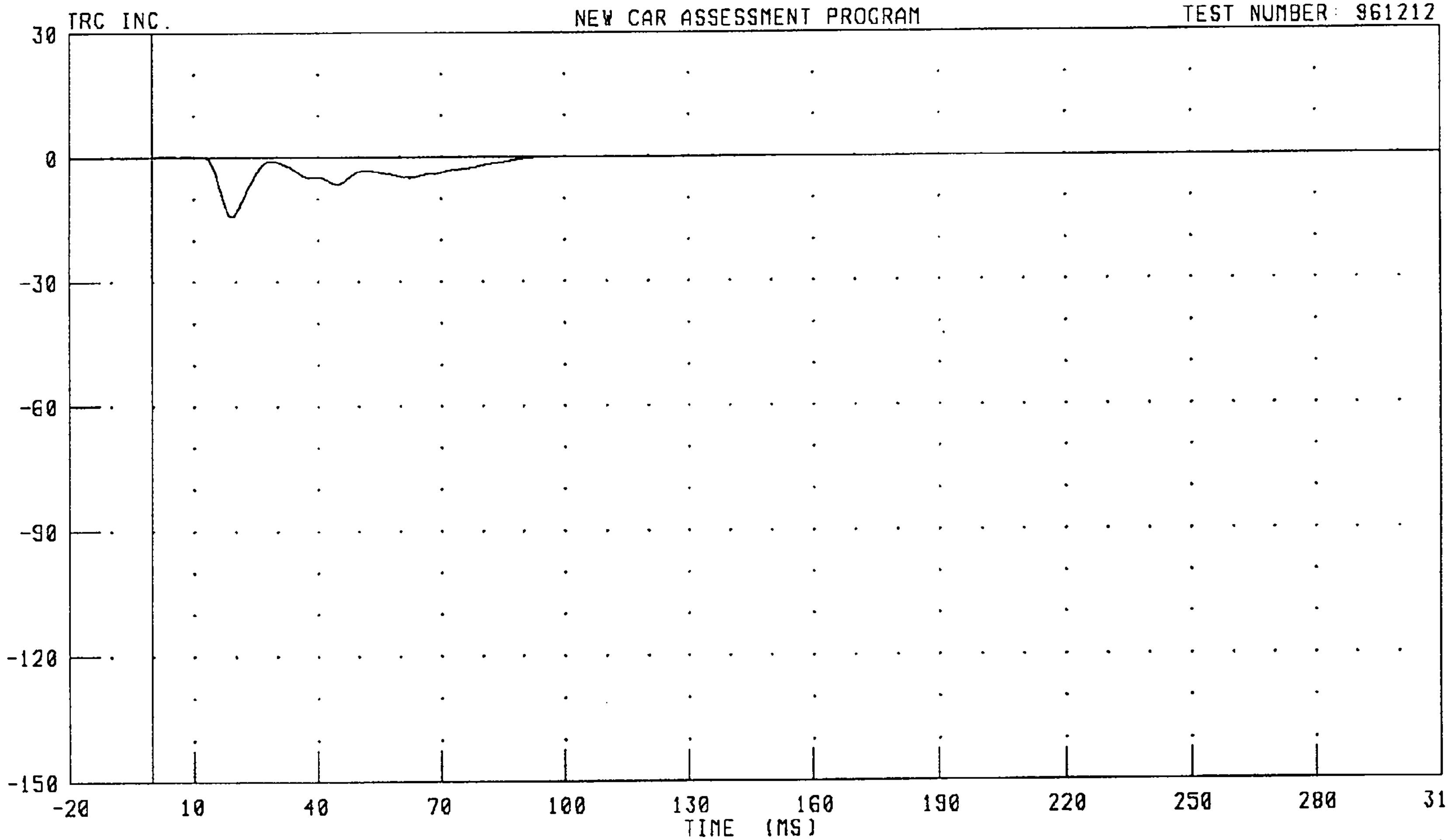
TRC INC.

TEST NUMBER: 961212



CHANNEL: BC1F FILTER: CH. CLASS 60 PEAK DATA: 0.21 KN @ 3.92 MS; -0.51 KN @ 11.44 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C2 FORCE
NEW CAR ASSESSMENT PROGRAM

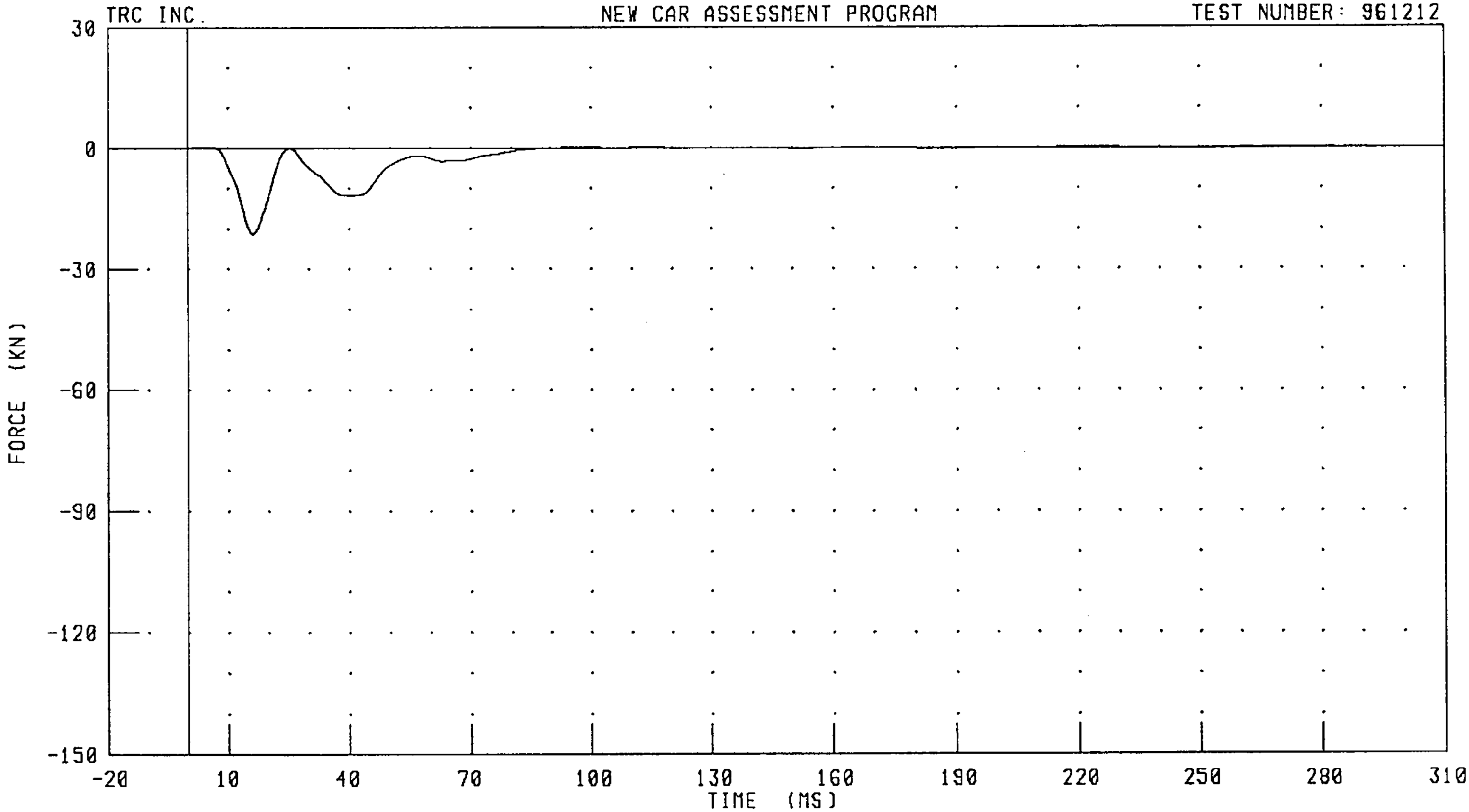


CHANNEL: BC2F FILTER: CH. CLASS 60 PEAK DATA: 0.19 KN @ 3.12 MS; -14.27 KN @ 19.20 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C3 FORCE
NEW CAR ASSESSMENT PROGRAM

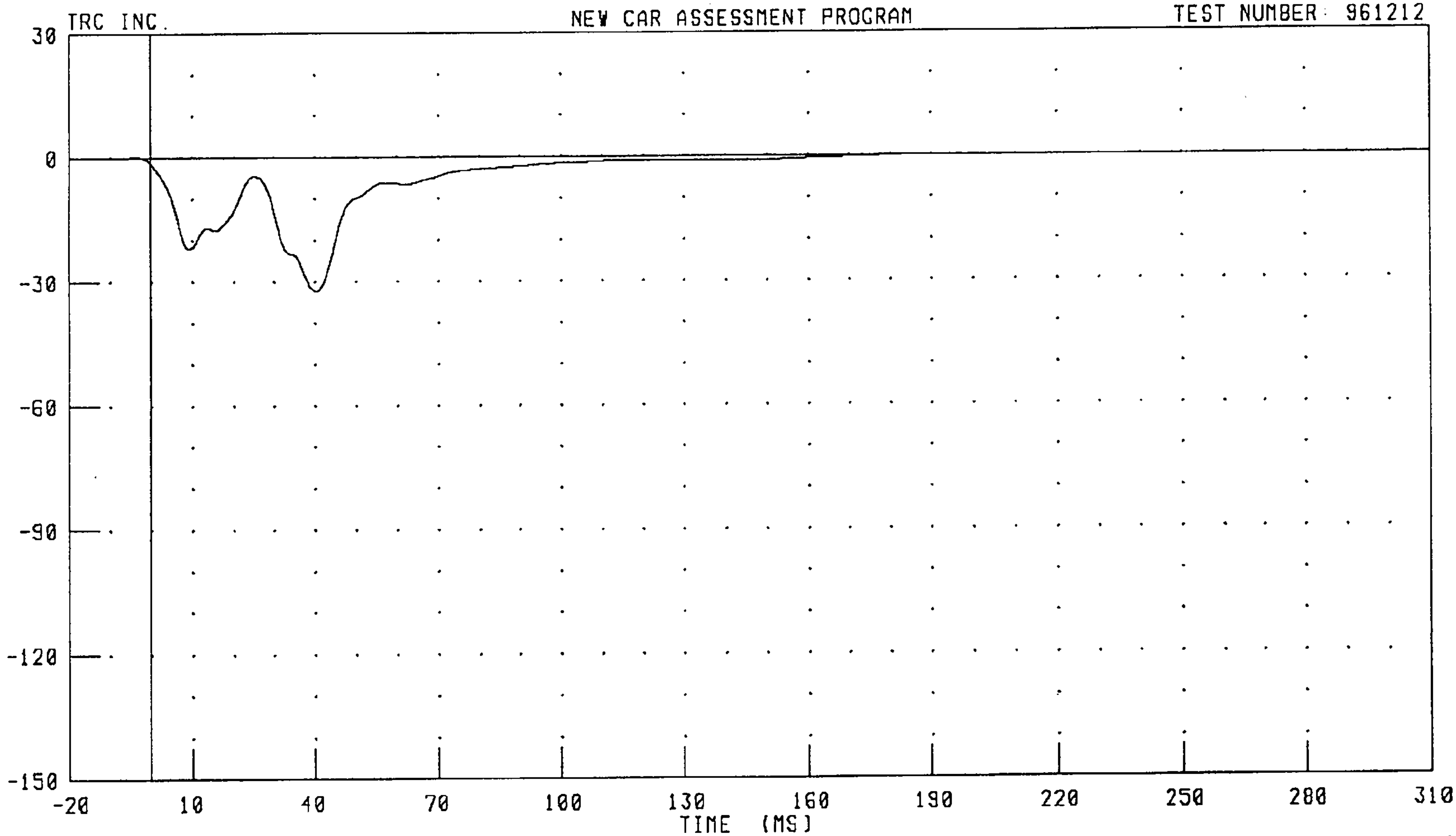
TRC INC.

TEST NUMBER: 961212



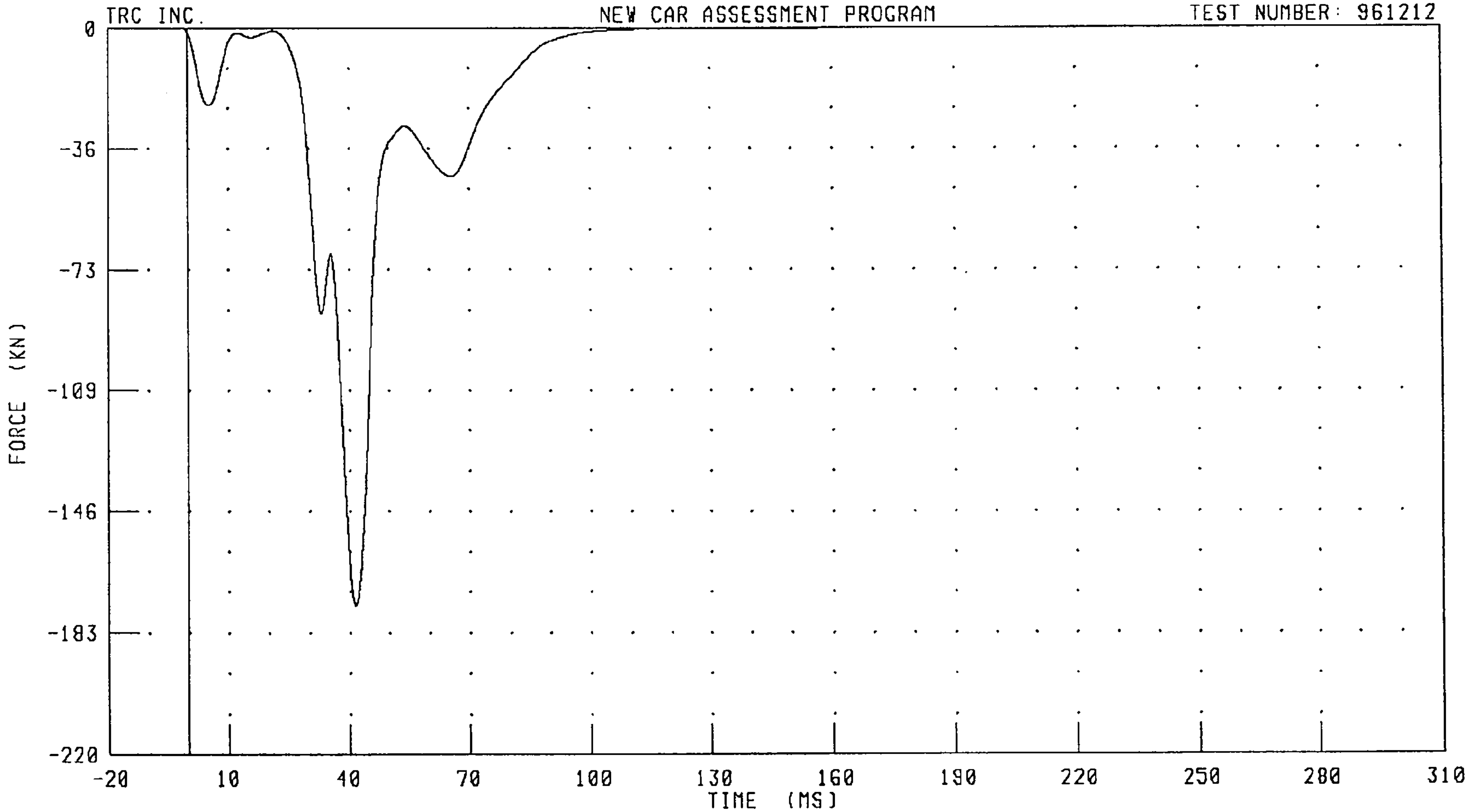
CHANNEL: BC3F FILTER: CH. CLASS 60 PEAK DATA: 0.31 KN @ 4.80 MS; -21.26 KN @ 16.16 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C4 FORCE
NEW CAR ASSESSMENT PROGRAM



CHANNEL: BC4F FILTER: CH. CLASS 60 PEAK DATA: 0.13 KN @ -3.68 MS; -32.29 KN @ 40.48 MS

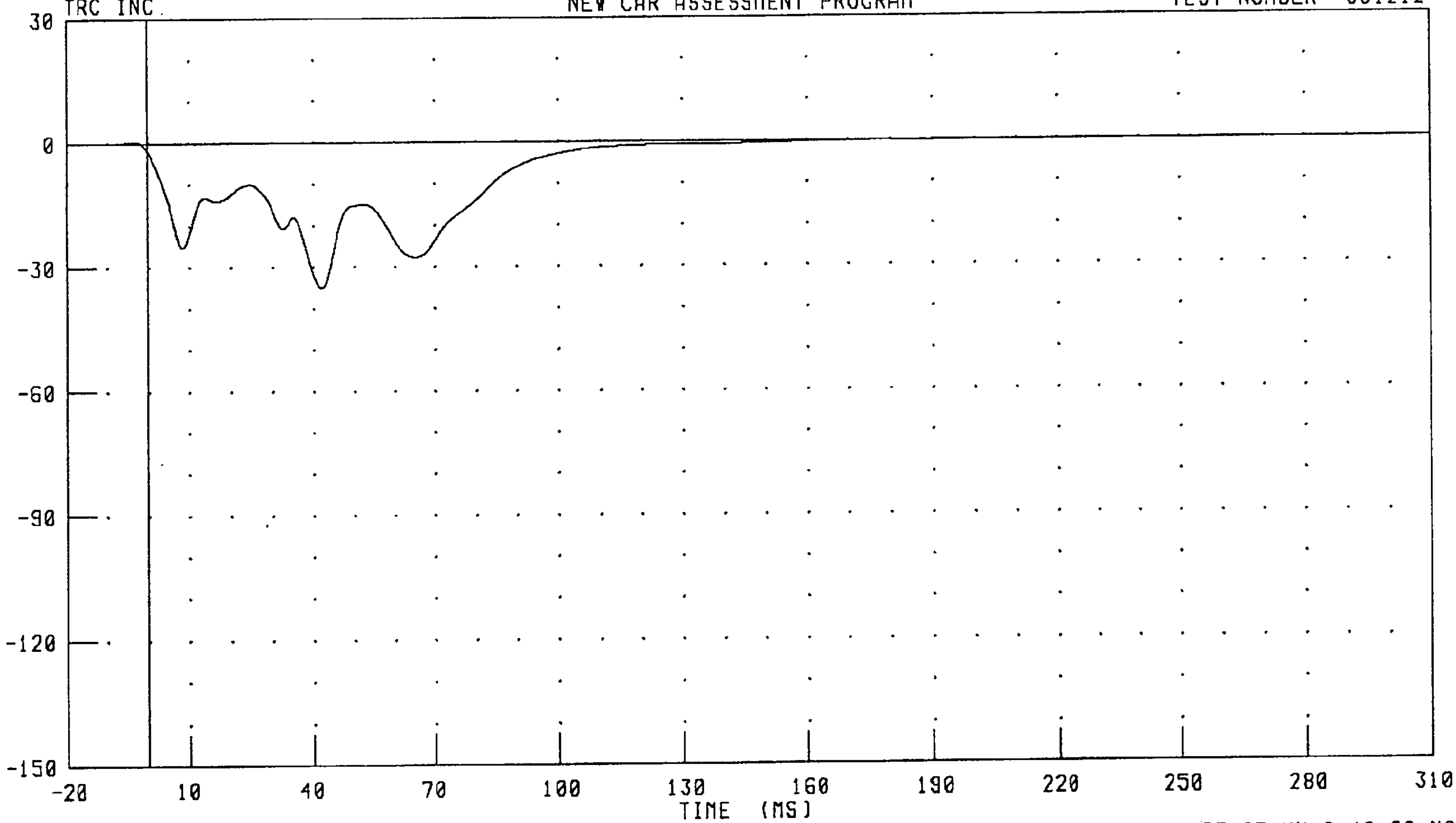
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C5 FORCE
NEW CAR ASSESSMENT PROGRAM



CHANNEL: BC5F FILTER: CH. CLASS 60 PEAK DATA: 0.77 KN @ -2.16 MS; -175.30 KN @ 41.52 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C6 FORCE
NEW CAR ASSESSMENT PROGRAM

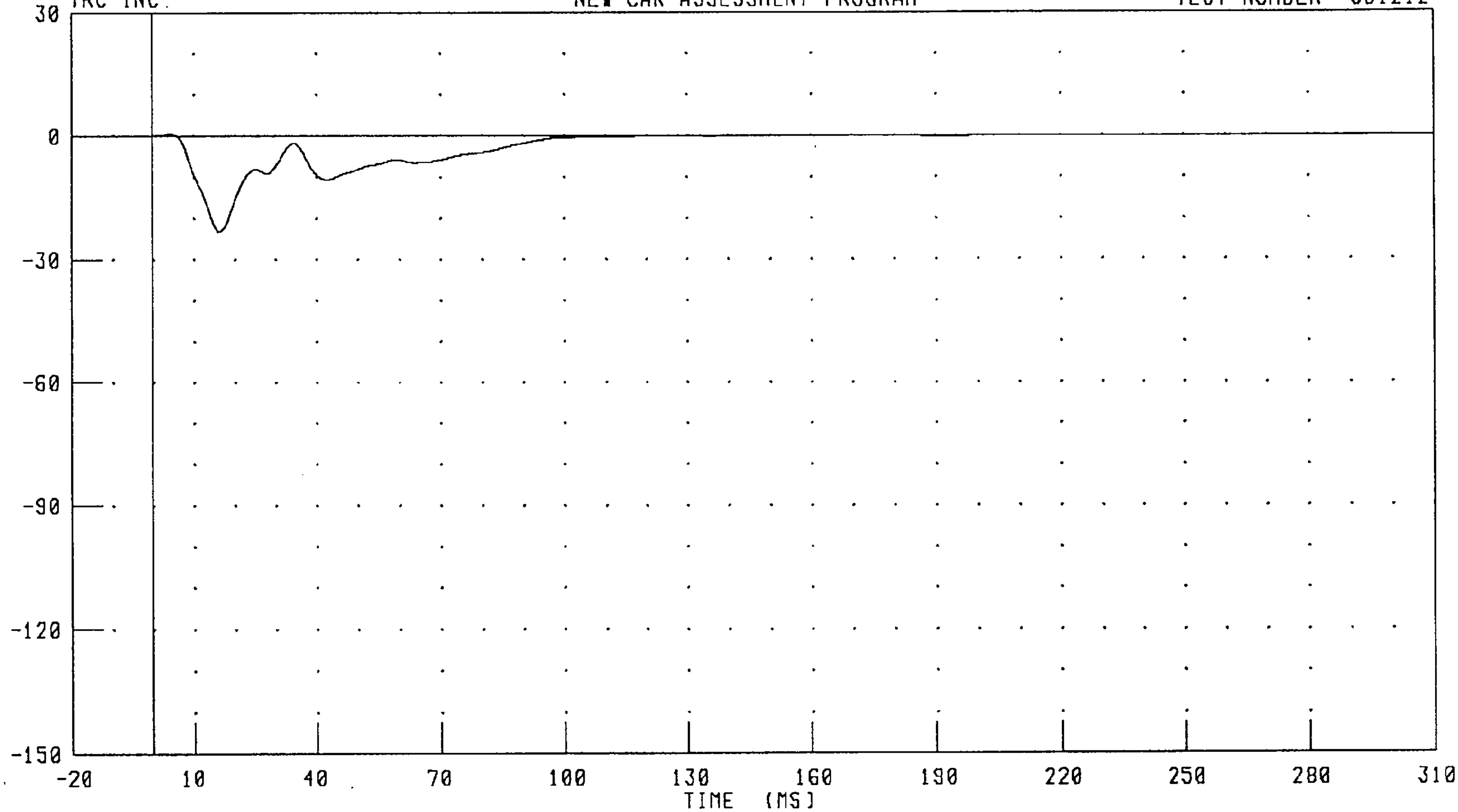
TEST NUMBER: 961212



CHANNEL: BC6F FILTER: CH. CLASS 60 PEAK DATA: 0.26 KN @ -3.36 MS; -35.05 KN @ 42.08 MS

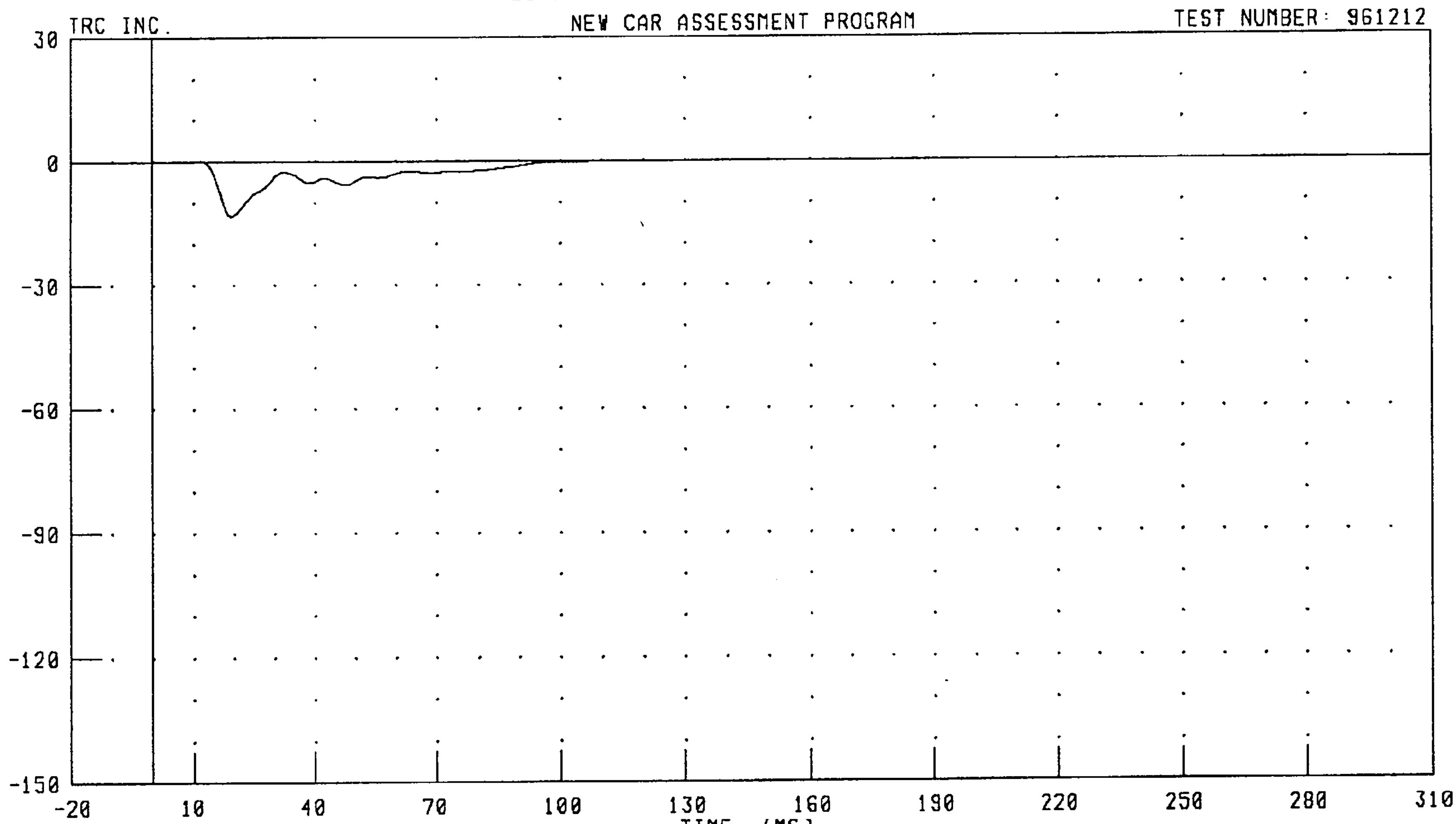
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C7 FORCE
NEW CAR ASSESSMENT PROGRAM

TRC INC. TEST NUMBER: 961212



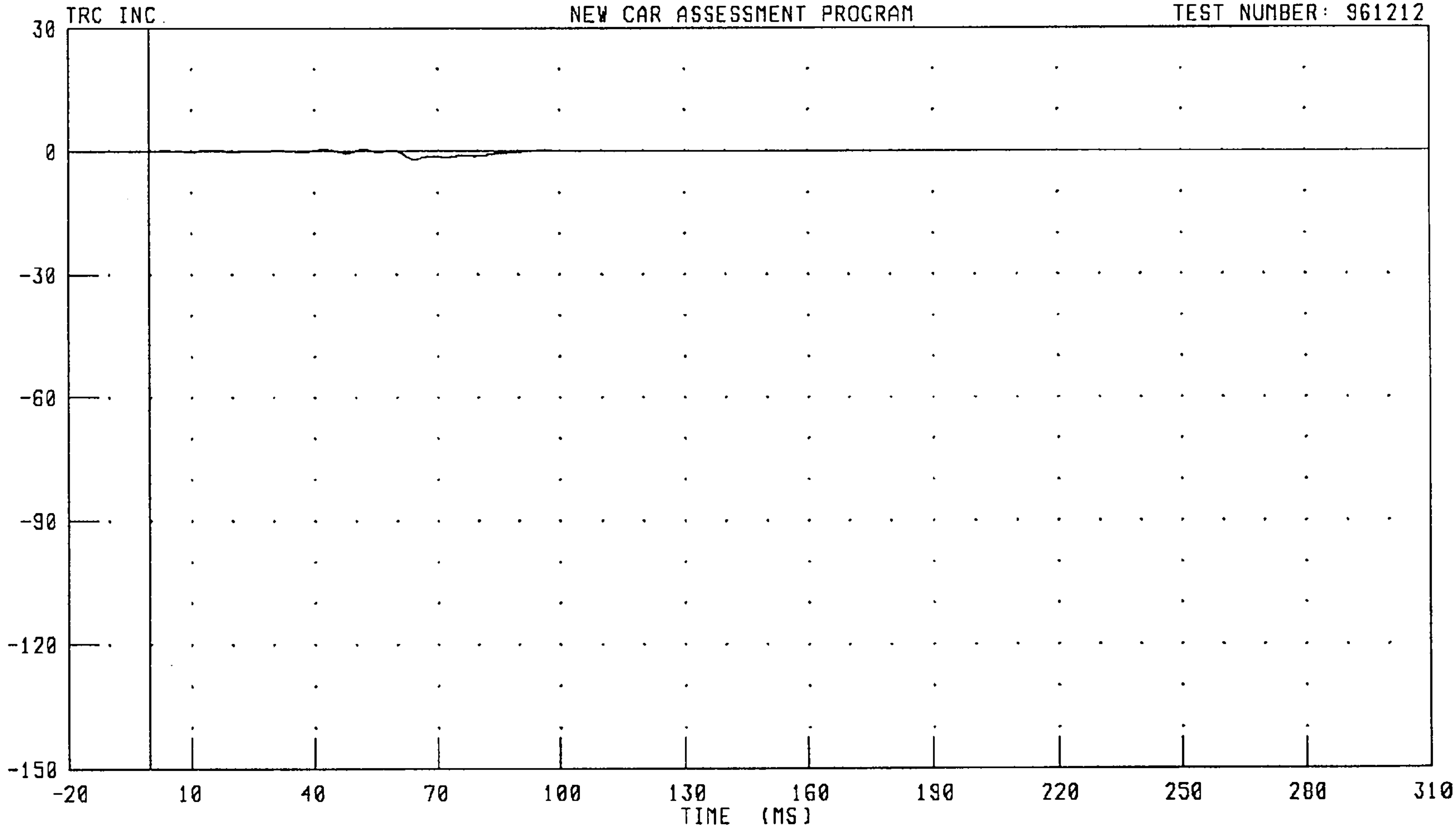
CHANNEL: BC7F FILTER: CH. CLASS 60 PEAK DATA: 0.39 KN @ 4.16 MS; -23.12 KN @ 16.32 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C8 FORCE
NEW CAR ASSESSMENT PROGRAM



CHANNEL: BC8F FILTER: CH. CLASS 60 PEAK DATA: 0.09 KN @ 11.84 MS; -13.19 KN @ 19.44 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION C9 FORCE
NEW CAR ASSESSMENT PROGRAM

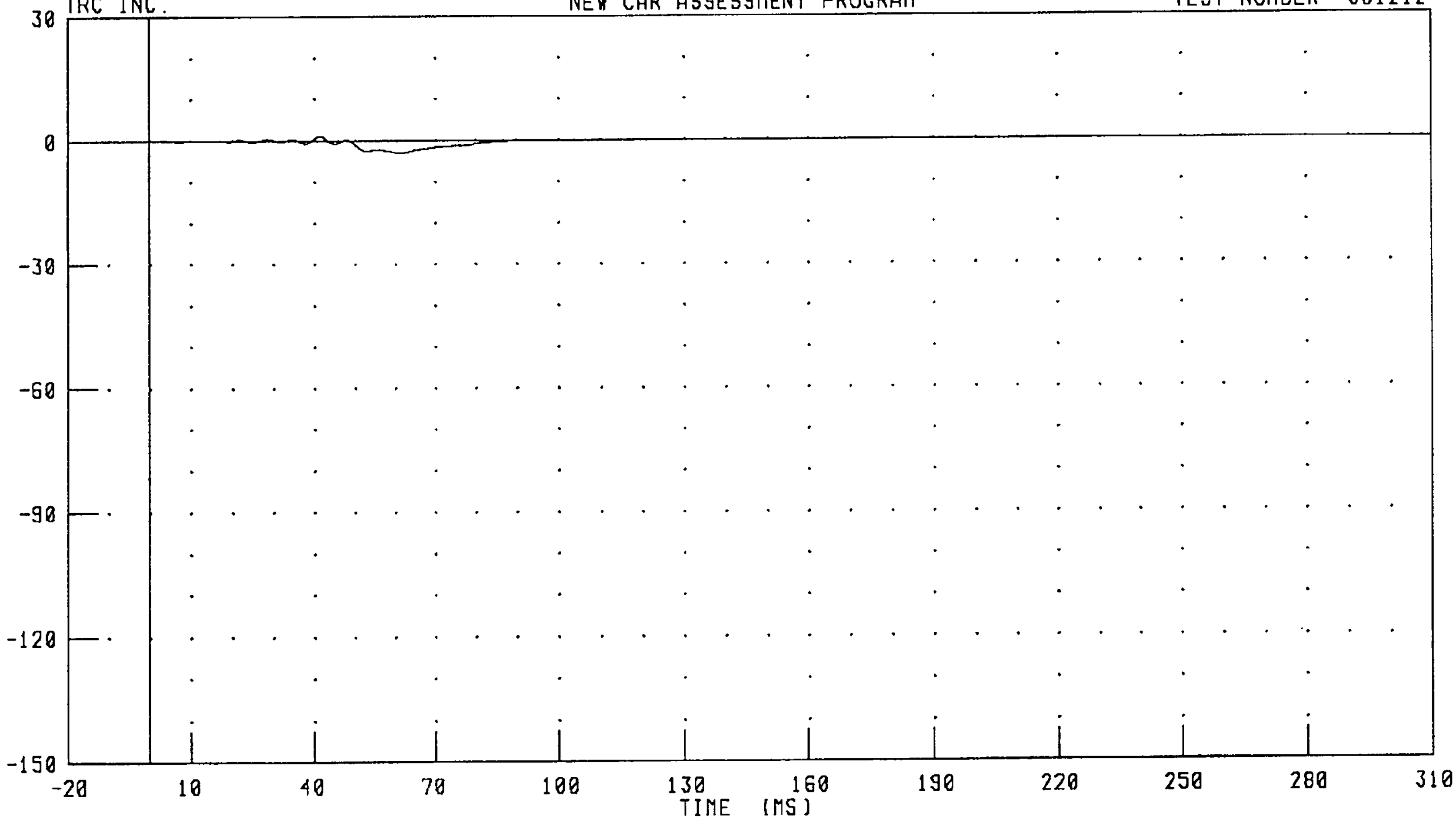


CHANNEL: BC9F FILTER: CH. CLASS 60 PEAK DATA: 0.44 KN @ 52.00 MS; -2.03 KN @ 64.64 MS

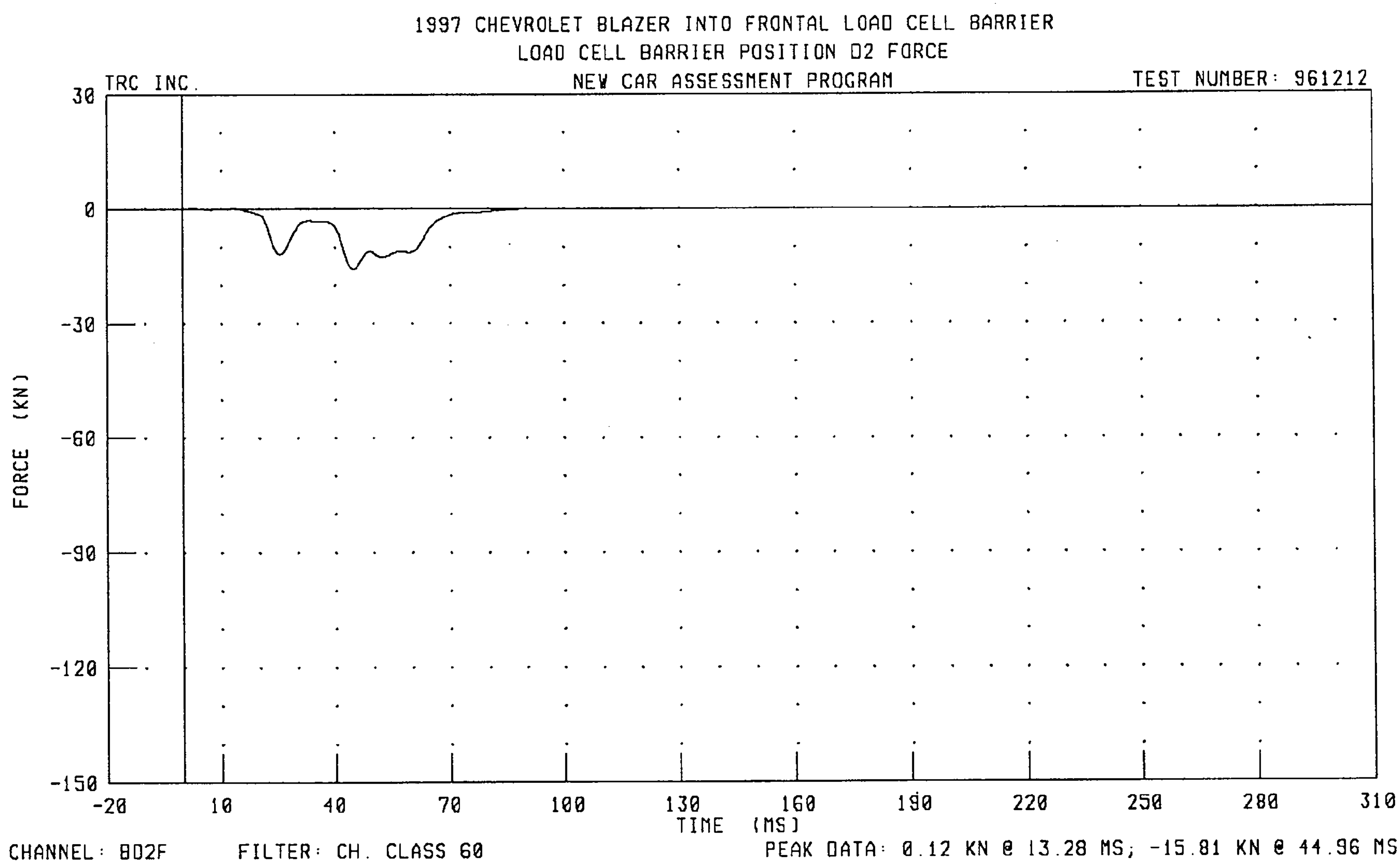
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D1 FORCE
NEW CAR ASSESSMENT PROGRAM

TRC INC.

TEST NUMBER: 961212

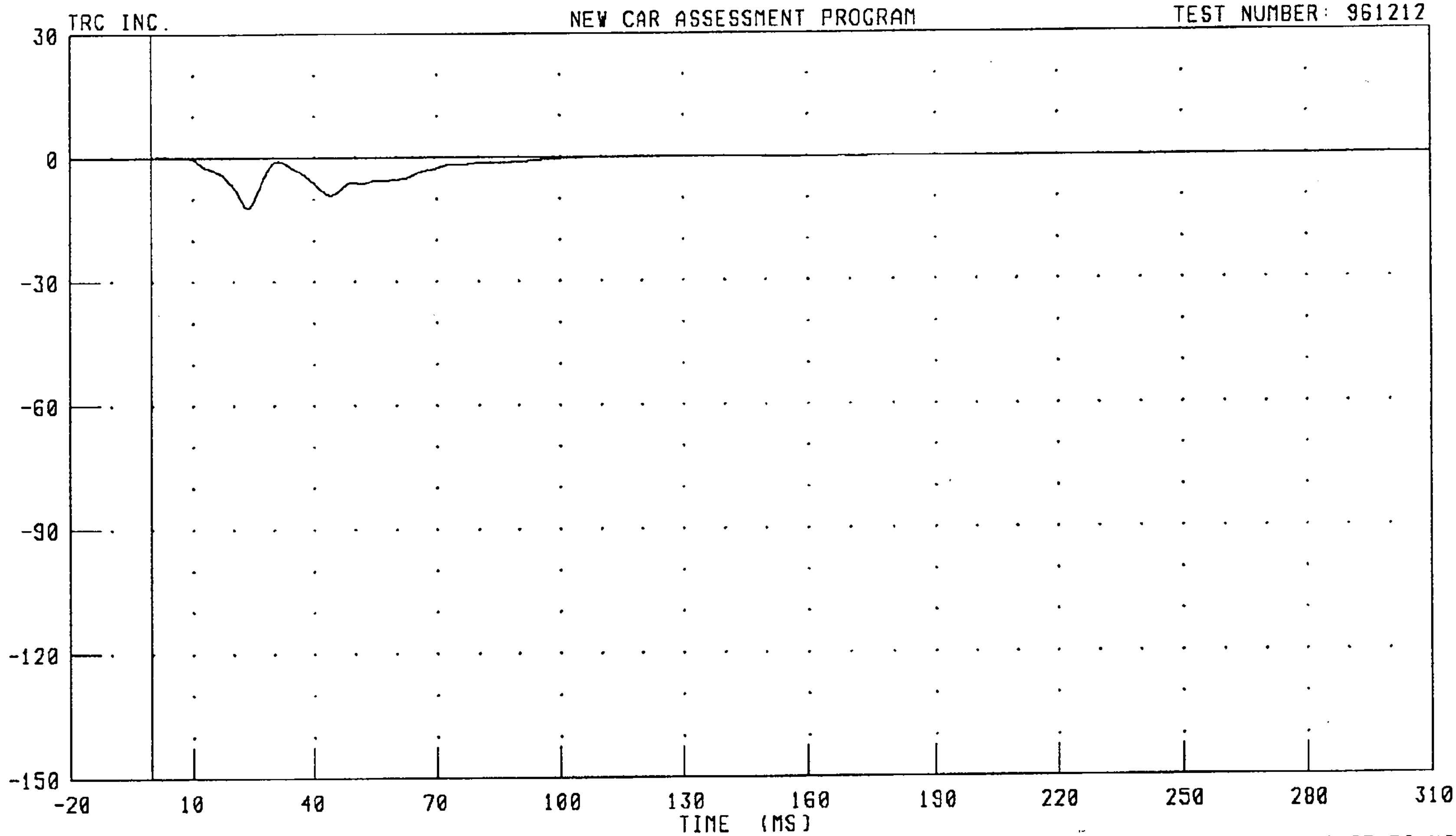


CHANNEL: BD1F FILTER: CH. CLASS 60 PEAK DATA: 1.06 KN @ 41.44 MS; -3.09 KN @ 61.36 MS


1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D2 FORCE
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 961212
FORCE (KN)
30
0
-30
-60
-90
-120
-150
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BD2F
FILTER: CH. CLASS 60
PEAK DATA: 0.12 KN @ 13.28 MS; -15.81 KN @ 44.96 MS

961212

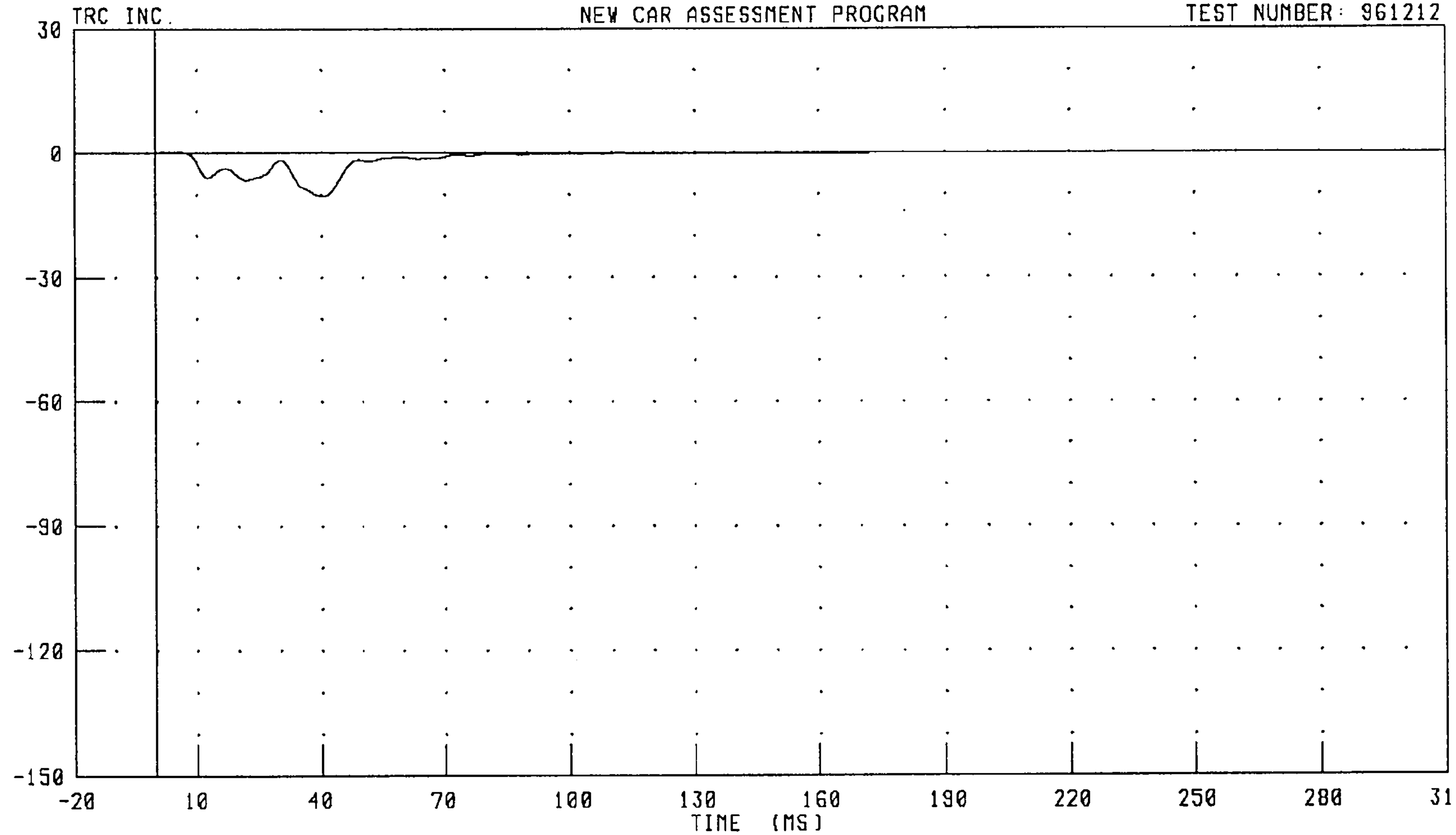
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D3 FORCE
NEW CAR ASSESSMENT PROGRAM



CHANNEL: B03F FILTER: CH. CLASS 60 PEAK DATA: 0.14 KN @ 2.80 MS; -12.19 KN @ 23.76 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D4 FORCE
NEW CAR ASSESSMENT PROGRAM

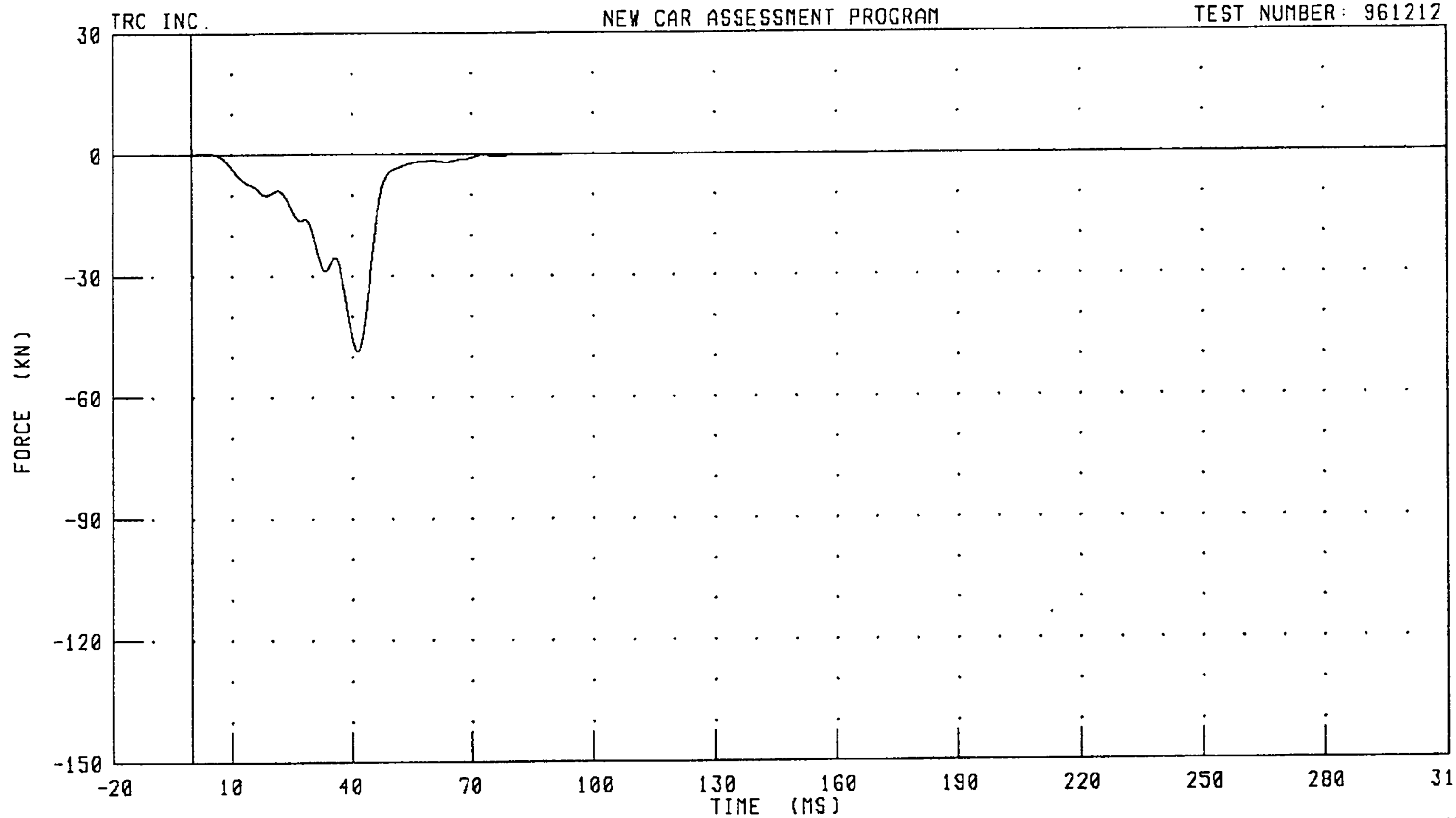
TRC INC. TEST NUMBER: 961212



CHANNEL: BD4F FILTER: CH. CLASS 60 PEAK DATA: 0.18 KN @ 3.36 MS; -10.40 KN @ 40.48 MS

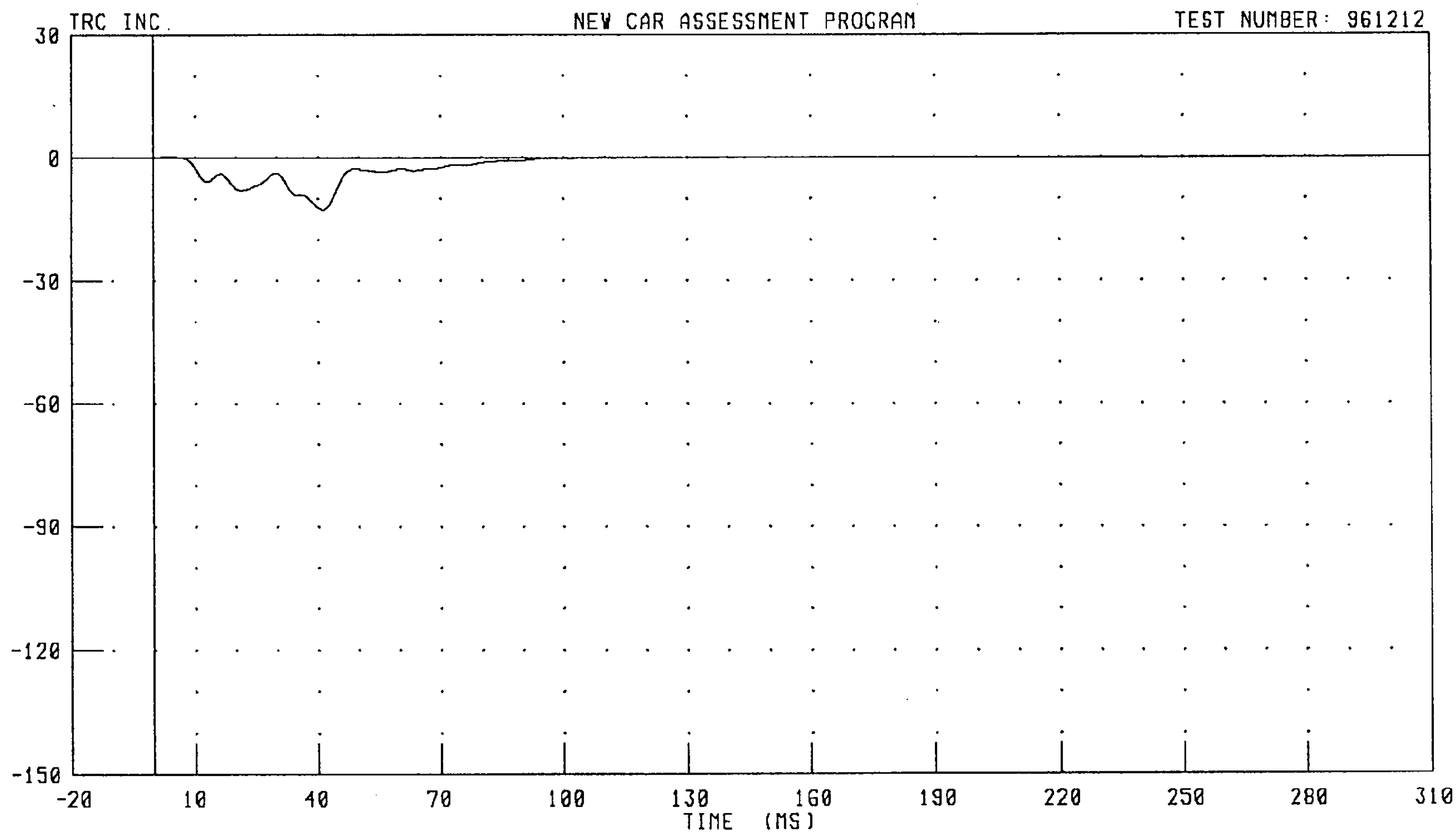
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D5 FORCE
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961212



CHANNEL: BD5F FILTER: CH. CLASS 60 PEAK DATA: 0.21 KN @ 3.20 MS; -48.67 KN @ 41.44 MS

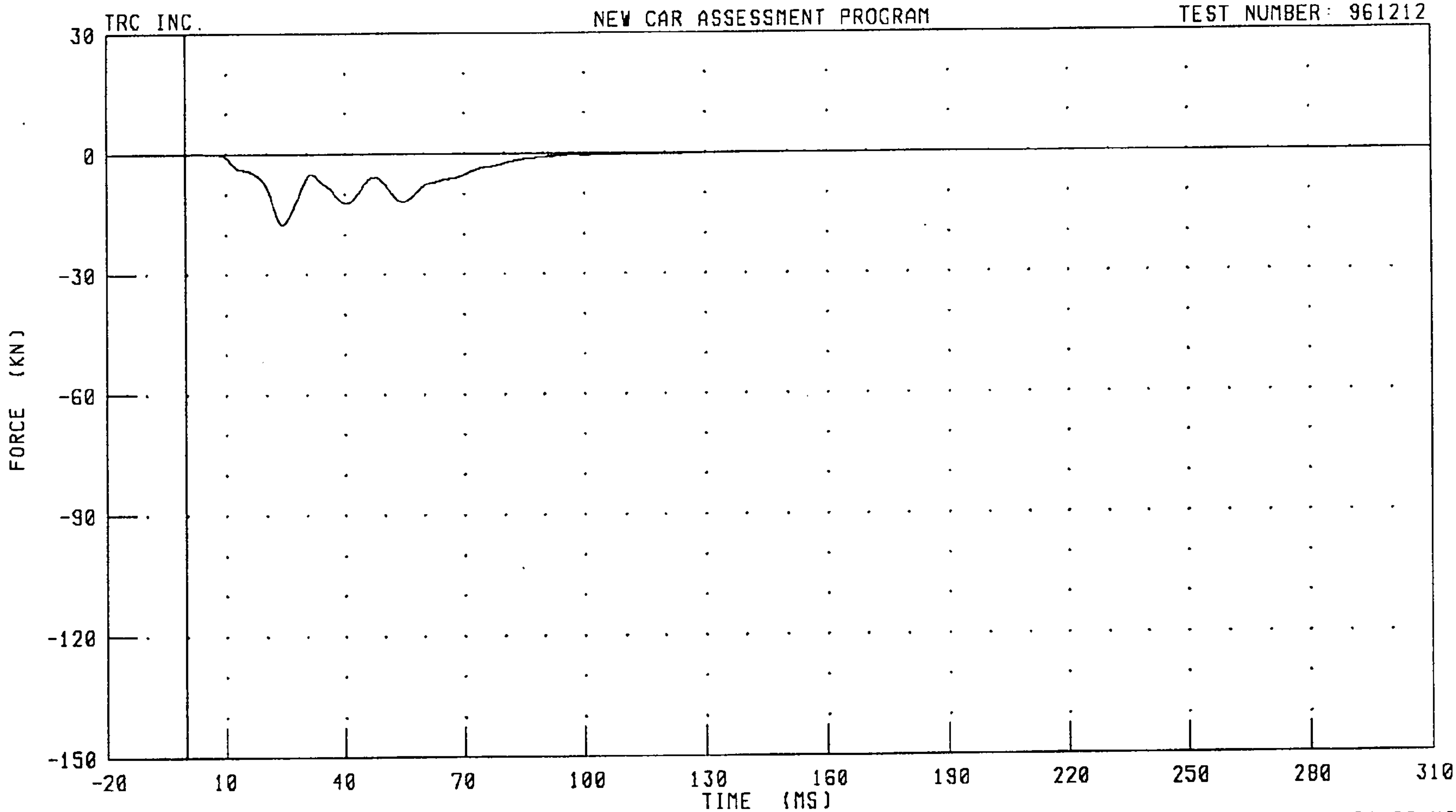
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D6 FORCE
NEW CAR ASSESSMENT PROGRAM



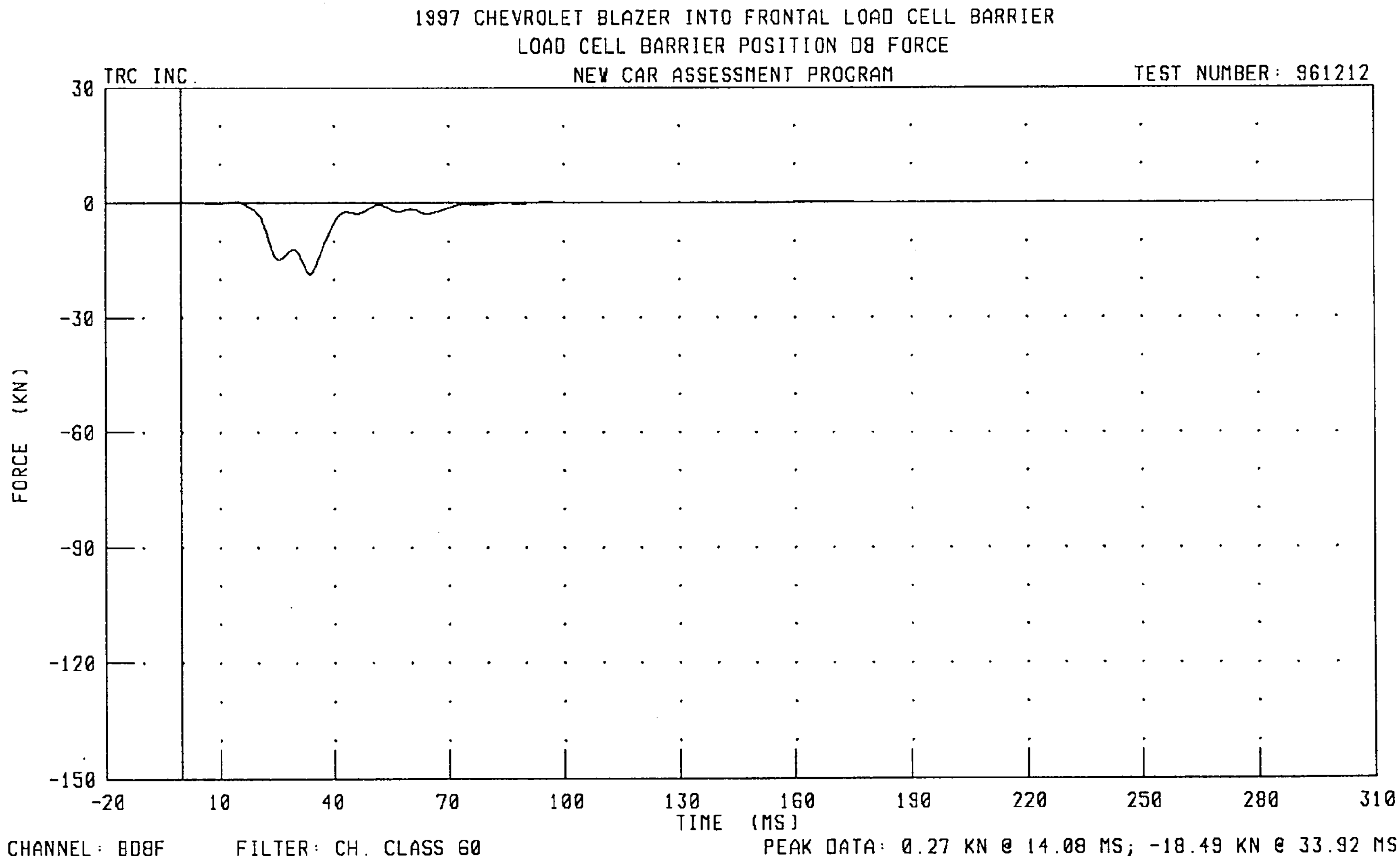
CHANNEL: BD6F FILTER: CH. CLASS 60 PEAK DATA: 0.15 KN @ 3.52 MS; -12.71 KN @ 41.36 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D7 FORCE
NEW CAR ASSESSMENT PROGRAM

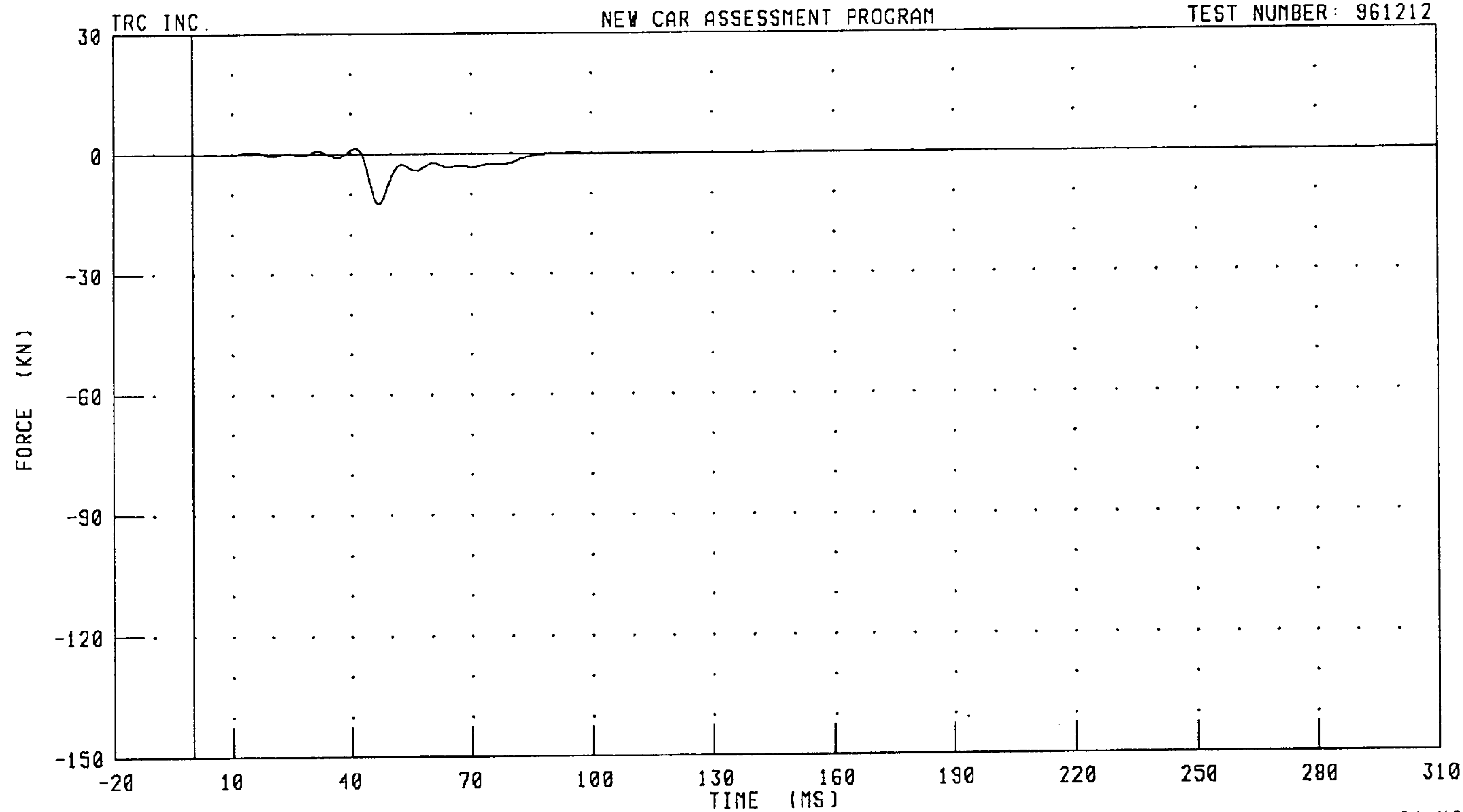
TEST NUMBER: 961212



CHANNEL: BD7F FILTER: CH. CLASS 60 PEAK DATA: 0.13 KN @ 2.96 MS; -17.58 KN @ 24.08 MS

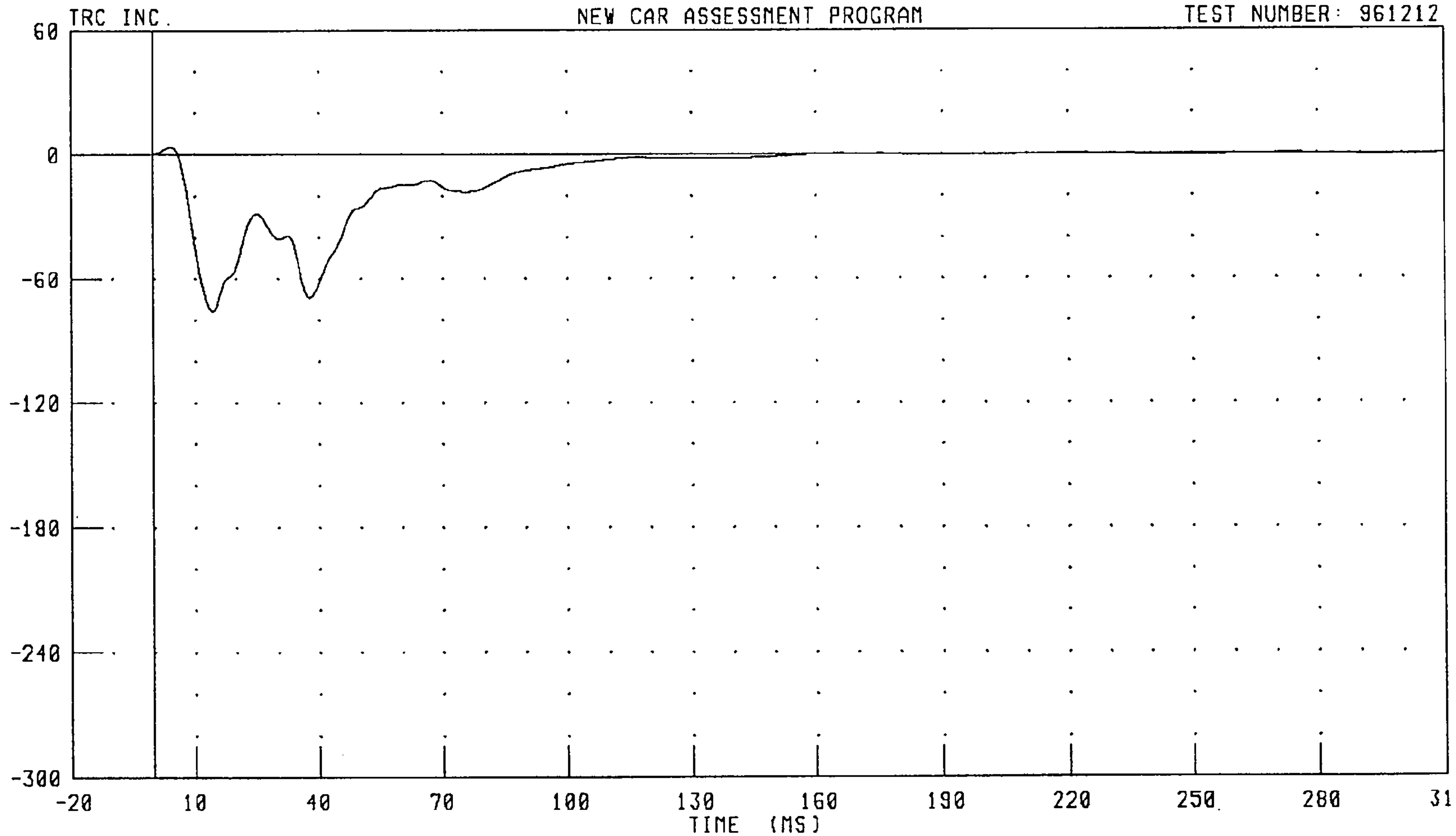

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D8 FORCE
NEW CAR ASSESSMENT PROGRAM
TRC INC.
TEST NUMBER: 961212
30
0
-30
-60
-90
-120
-150
FORCE (KN)
-20
10
40
70
100
130
160
190
220
250
280
310
TIME (MS)
CHANNEL: BD8F
FILTER: CH. CLASS 60
PEAK DATA: 0.27 KN @ 14.08 MS; -18.49 KN @ 33.92 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER POSITION D9 FORCE
NEW CAR ASSESSMENT PROGRAM



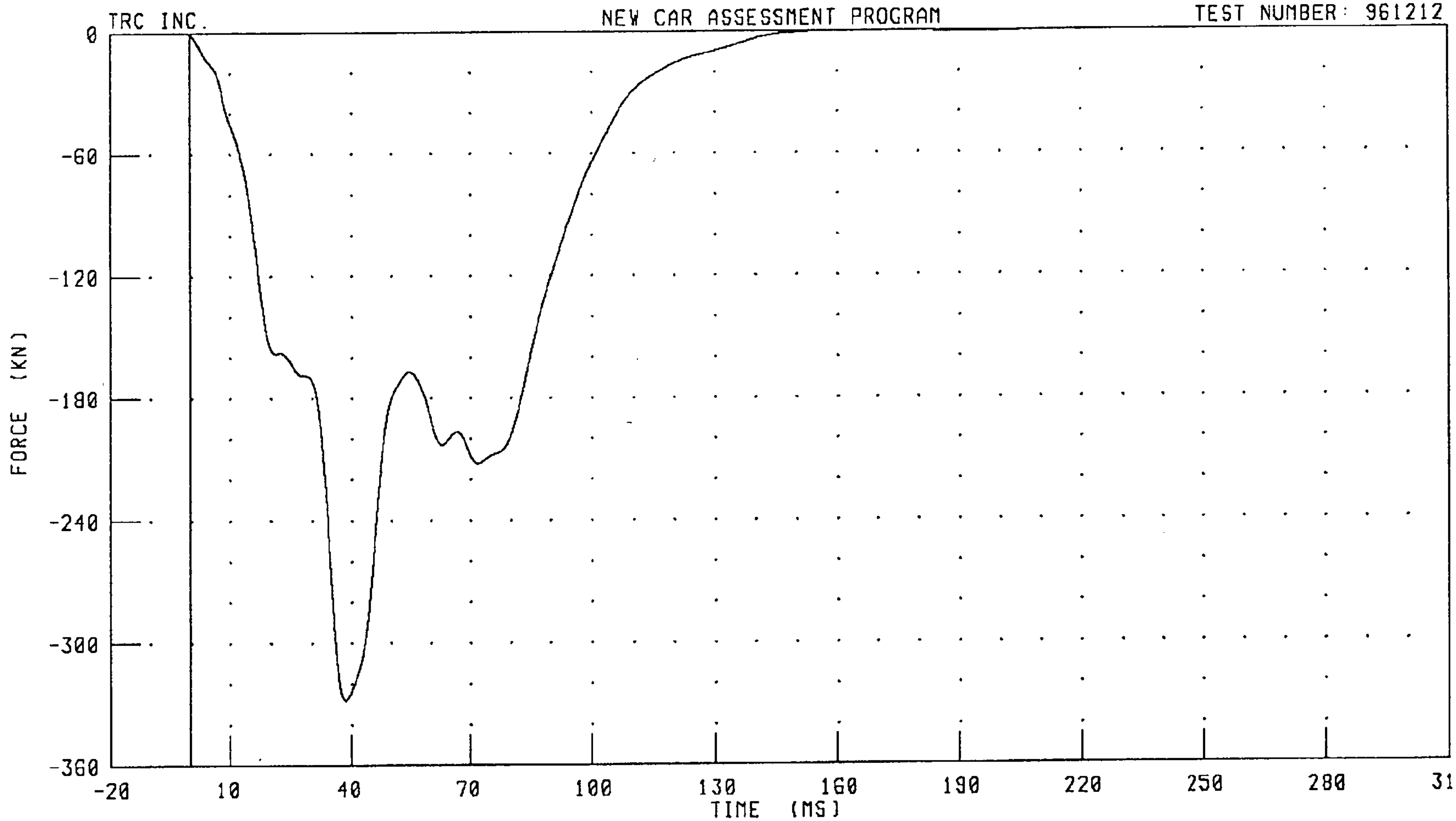
CHANNEL: BD9F FILTER: CH. CLASS 60 PEAK DATA: 1.37 KN @ 41.28 MS; -12.46 KN @ 47.04 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 1 FORCE TOTAL
NEW CAR ASSESSMENT PROGRAM



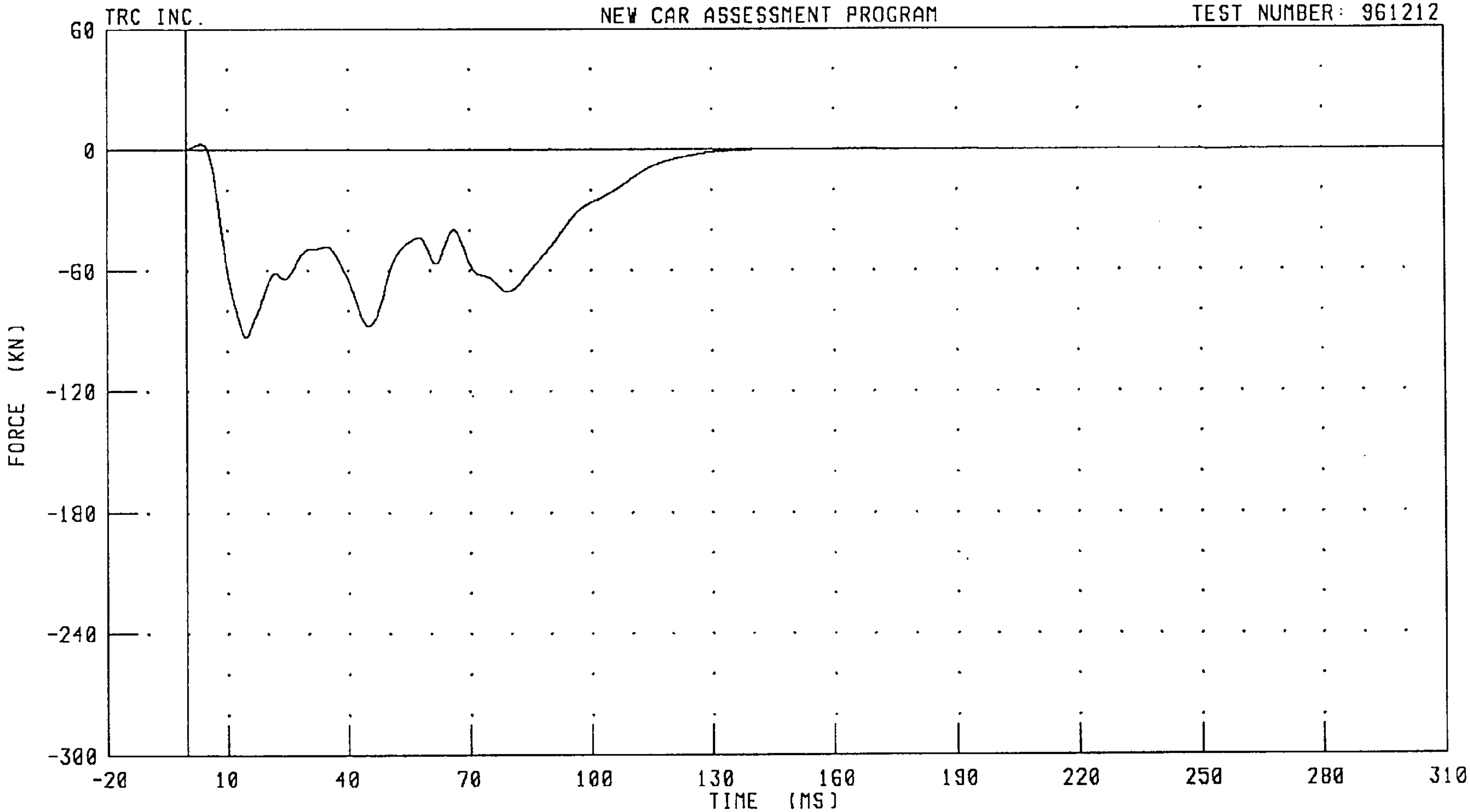
CHANNEL: LCBGIF FILTER: CH. CLASS 60 PEAK DATA: 3.61 KN @ 4.16 MS; -75.74 KN @ 14.40 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 2 FORCE TOTAL
NEW CAR ASSESSMENT PROGRAM



CHANNEL: LCBG2F   FILTER: CH. CLASS 60   PEAK DATA: 0.90 KN @ 162.72 MS; -328.18 KN @ 38.56 MS

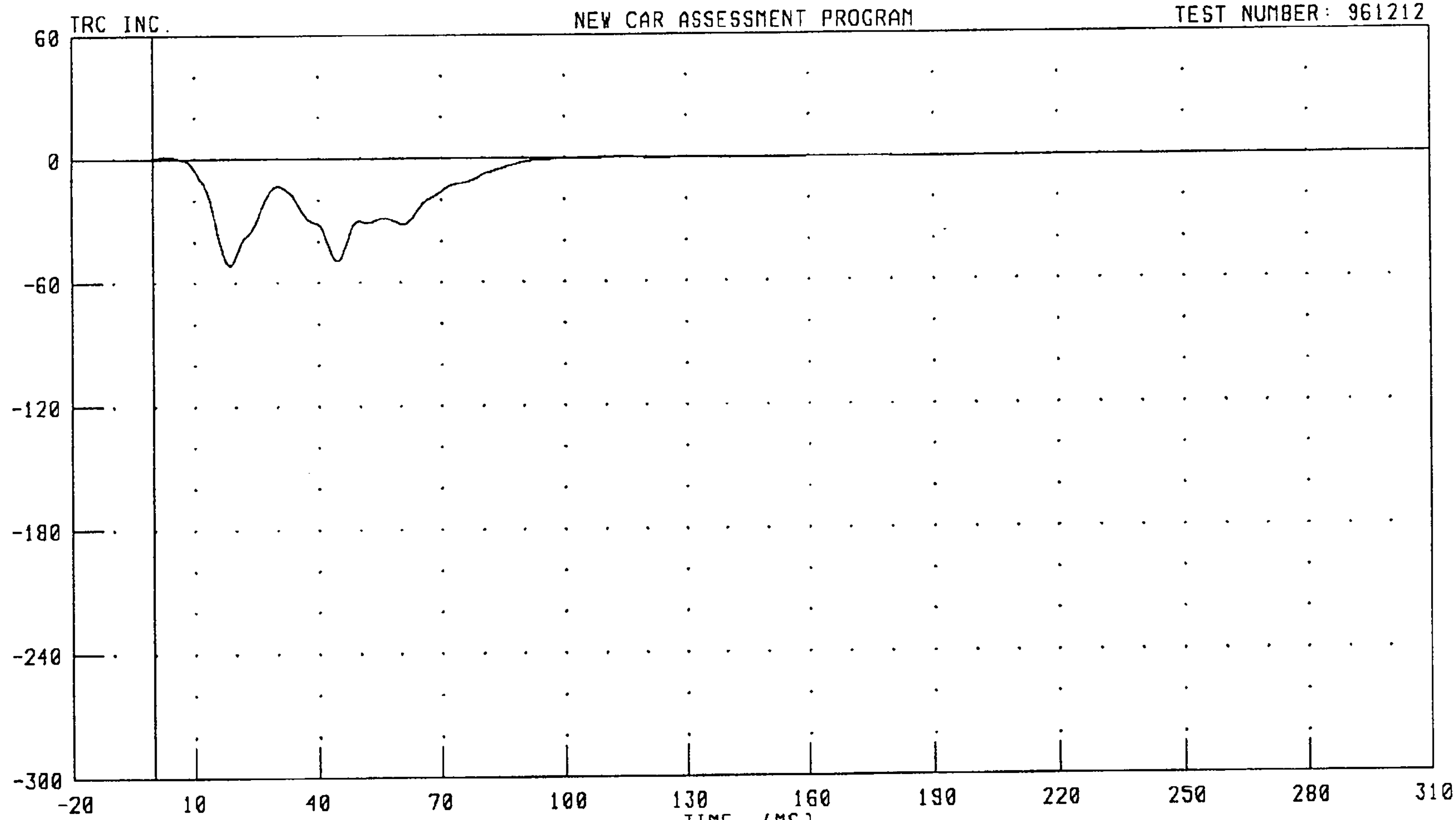
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 3 FORCE TOTAL
NEW CAR ASSESSMENT PROGRAM



CHANNEL: LCBG3F FILTER: CH. CLASS 60 PEAK DATA: 2.82 KN @ 3.60 MS; -93.01 KN @ 14.72 MS

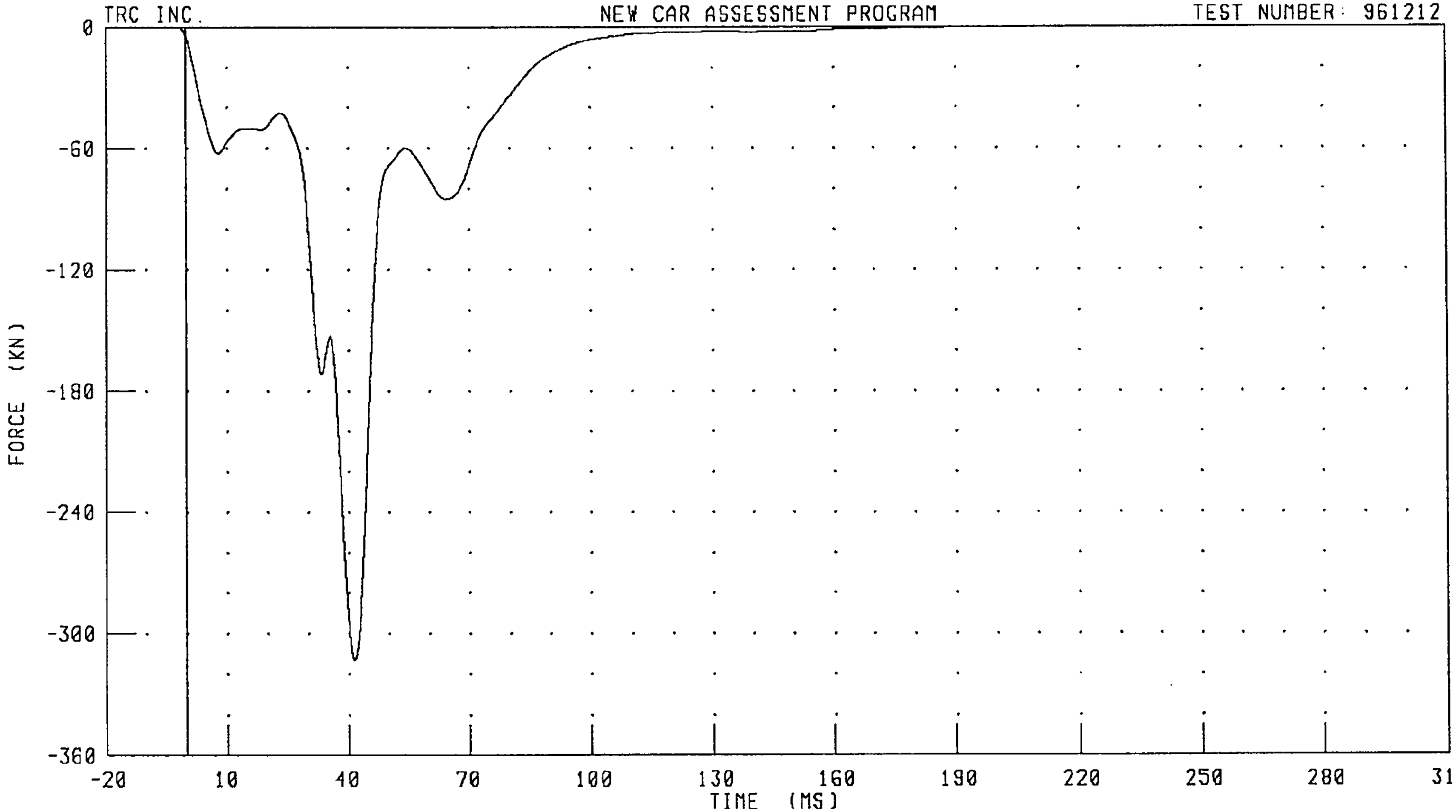
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 4 FORCE TOTAL
NEW CAR ASSESSMENT PROGRAM

TEST NUMBER: 961212



CHANNEL: LCBG4F   FILTER: CH. CLASS 60   PEAK DATA: 1.18 KN @ 3.28 MS; -51.71 KN @ 18.80 MS

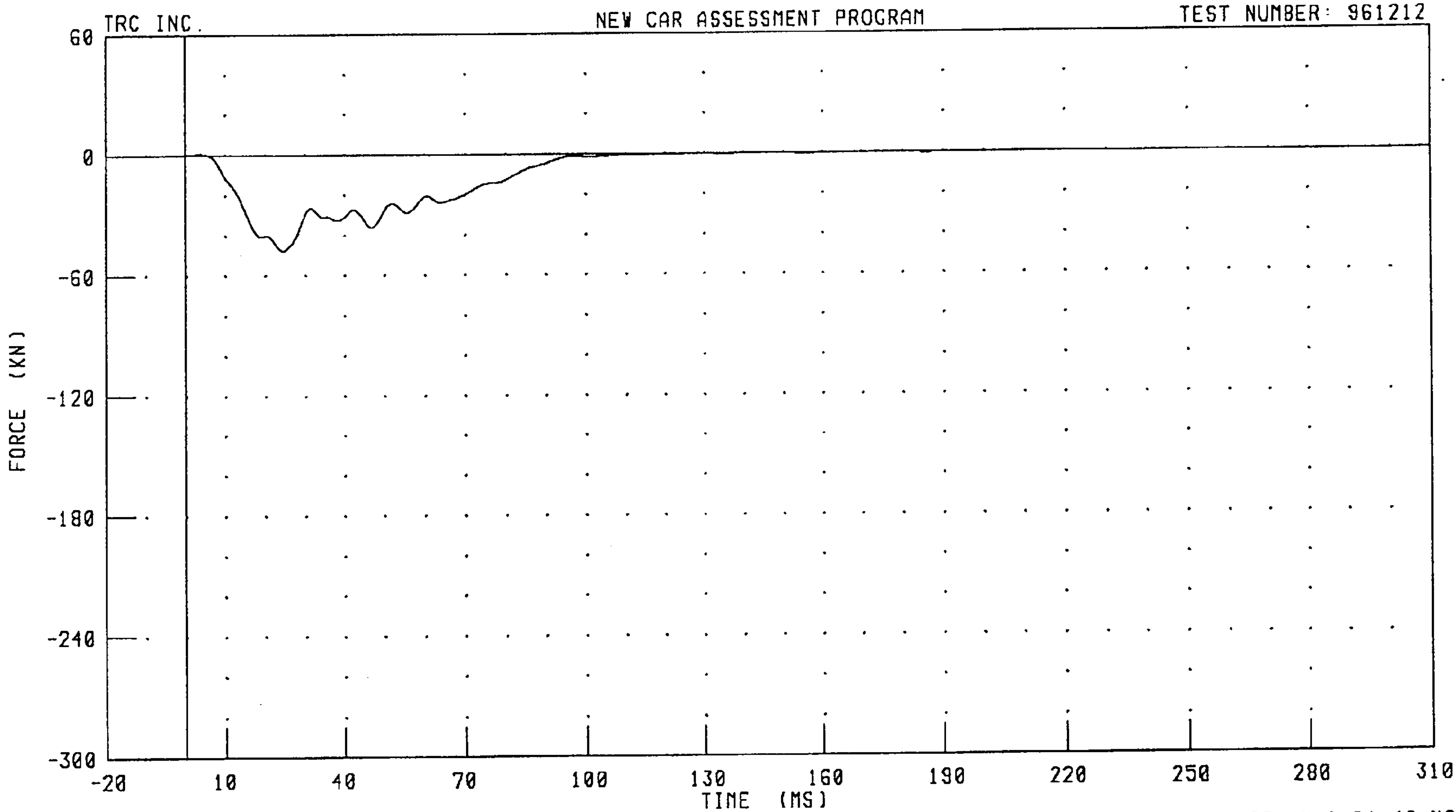
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 5 FORCE TOTAL
NEW CAR ASSESSMENT PROGRAM



CHANNEL: LCBG5F FILTER: CH. CLASS 60

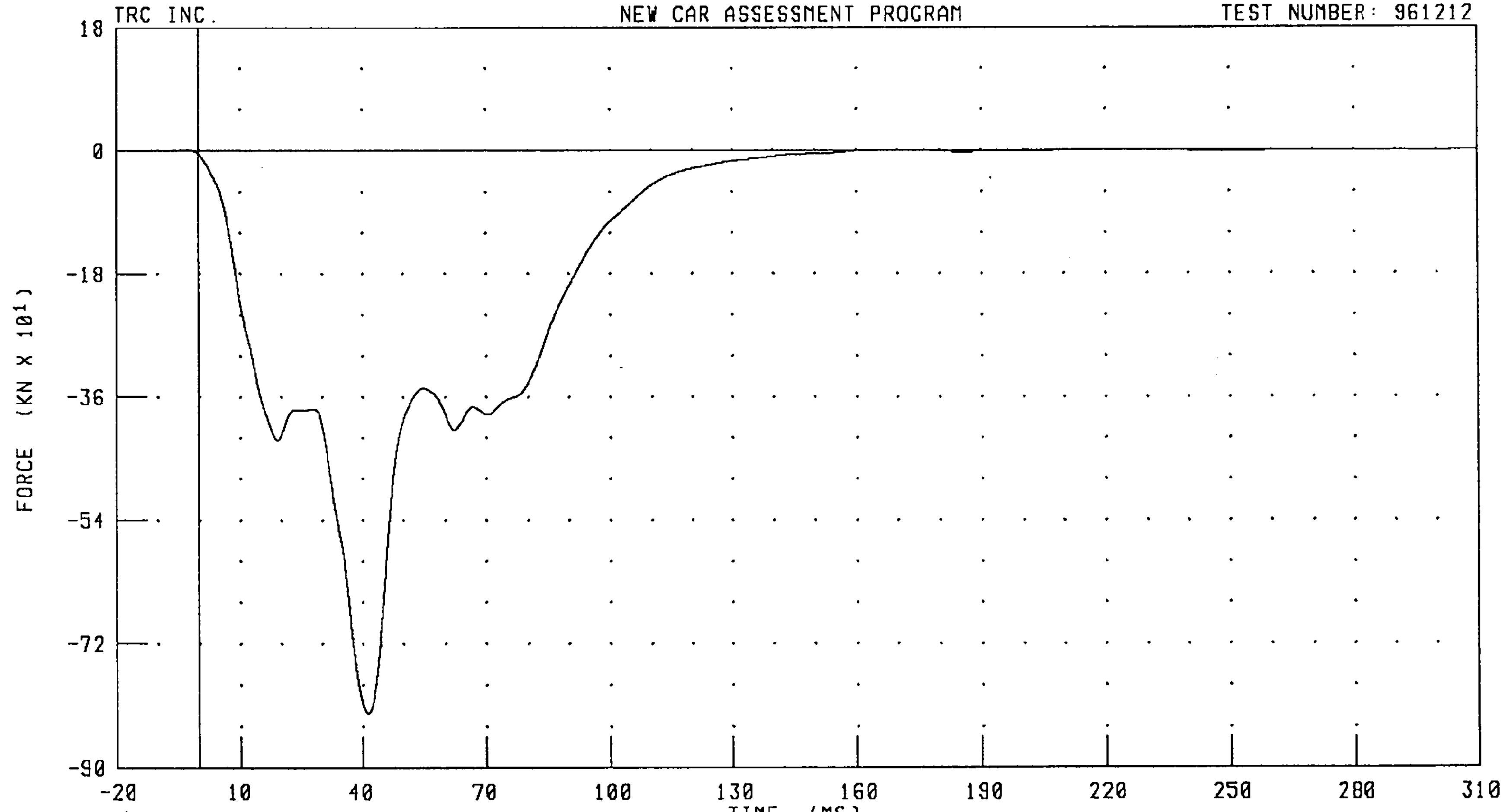
PEAK DATA: 0.96 KN @ -2.88 MS; -313.17 KN @ 41.44 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
LOAD CELL BARRIER GROUP # 6 FORCE TOTAL
NEW CAR ASSESSMENT PROGRAM



CHANNEL: LCBG6F FILTER: CH. CLASS 60 PEAK DATA: 0.75 KN @ 3.36 MS; -47.63 KN @ 24.48 MS

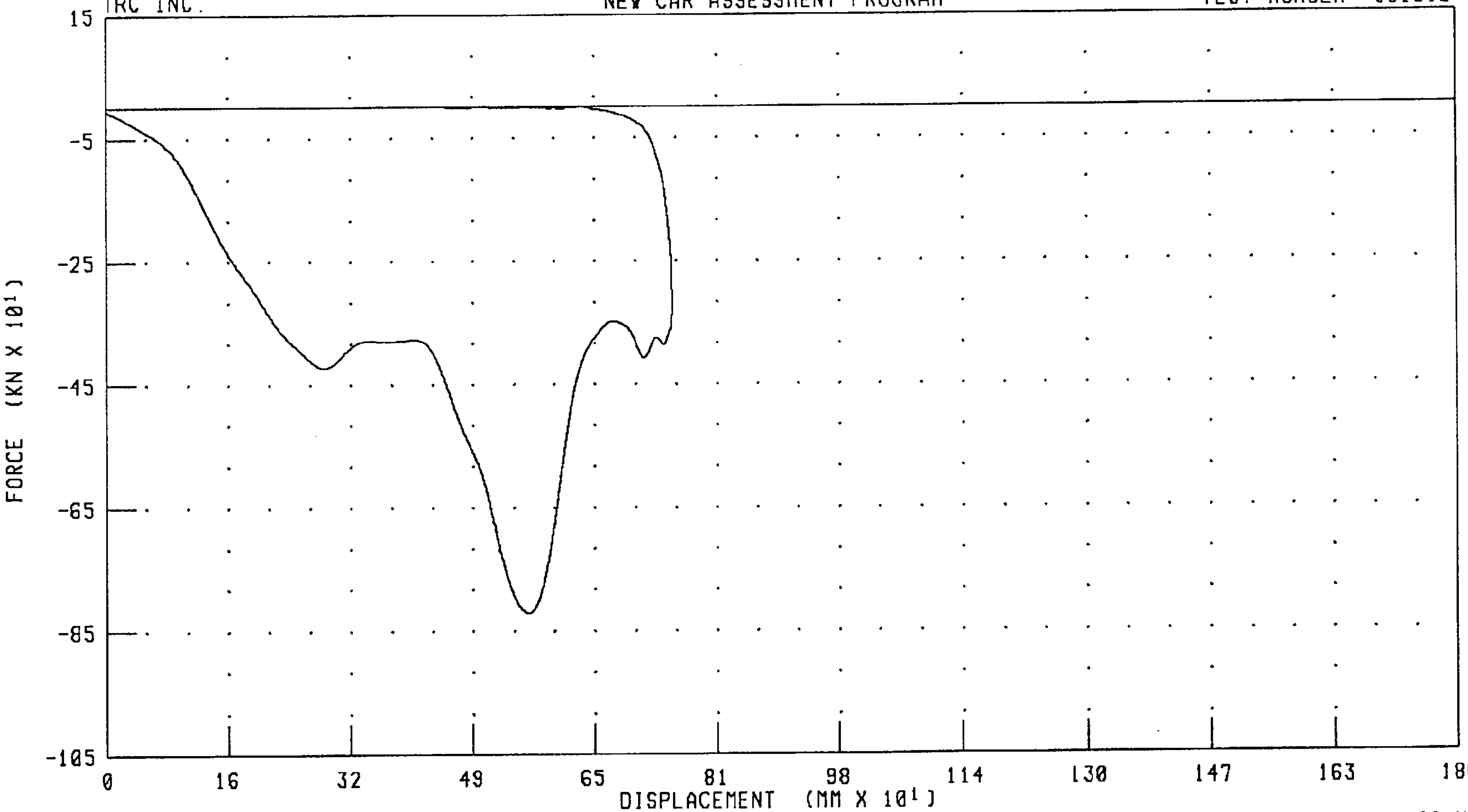
1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
TOTAL LOAD CELL BARRIER FORCE
NEW CAR ASSESSMENT PROGRAM



CHANNEL: LCBGT FILTER: CH. CLASS 60 PEAK DATA: 1.00 KN @ -2.80 MS; -820.95 KN @ 41.44 MS

1997 CHEVROLET BLAZER INTO FRONTAL LOAD CELL BARRIER
TOTAL LOAD CELL BARRIER FORCE VS AVERAGE VEHICLE X-AXIS DISPLACEMENT
NEW CAR ASSESSMENT PROGRAM

TRC INC.
TEST NUMBER: 961212



CHANNEL: OTHXD
LCBGT
FILTER: CH. CLASS 180
CH. CLASS 60
PEAK DATA: 759.09 MM @ 81.60 MS; 0.00 MM @ 0.00 MS
0.28 KN @ 224.48 MS; -820.95 KN @ 41.44 MS

Appendix C

Dummy Certification Data

Pre-test Certification Data

Driver Dummy S/N: 142

TRANSPORTATION RESEARCH CENTER INC.
HYBRID III EXTERNAL DIMENSIONS
SN 142 HUMANOID 21-NOV-96
TRC INC. TEST NO: 142C35ED1 572E SN142 EXT.DIMENSION CAL35

TEST PARAMETER	(DIMEN.)	SPECIFICATION	TEST RESULTS
LOCATION FOR CHEST CIRCUMFERENCE	(AA)	429 - 434 MM	432. MM
LOCATION FOR WAIST CIRCUMFERENCE	(BB)	226 - 231 MM	229. MM
CHEST CIRCUMFERENCE	(Y)	970 -1001 MM	986. MM
WAIST CIRCUMFERENCE	(Z)	836 - 866 MM	848. MM
CHEST DEPTH	(O)	213 - 229 MM	221. MM
H-POINT HEIGHT	(C)	84 - 89 MM	84. MM
H-POINT FROM SEATBACK	(D)	135 - 140 MM	137. MM
SKULL CAP TO BACKLINE	(H)	41 - 46 MM	43. MM
TOTAL SITTING HEIGHT	(A)	879 - 889 MM	879. MM
THIGH CLEARANCE	(F)	140 - 155 MM	145. MM
BUTTOCK KNEE LENGTH	(K)	579 - 605 MM	602. MM
BUTTOCK POPLITEAL LENGTH	(N)	452 - 478 MM	470. MM
POPLITEAL HEIGHT	(L)	429 - 455 MM	445. MM
KNEE PIVOT HEIGHT	(M)	485 - 500 MM	488. MM
FOOT LENGTH	(P)	252 - 267 MM	257. MM
FOOT BREADTH	(W)	91 - 107 MM	97. MM
SHOULDER PIVOT FROM BACKLINE	(E)	84 - 94 MM	91. MM
SHOULDER BREADTH	(V)	422 - 437 MM	429. MM
SHOULDER PIVOT HEIGHT	(B)	506 - 521 MM	508. MM
ELBOW REST HEIGHT	(J)	191 - 211 MM	203. MM
SHOULDER-ELBOW LENGTH	(I)	330 - 345 MM	345. MM
BACK OF ELBOW TO WRIST PIVOT	(G)	290 - 305 MM	292. MM

DUMMY MEETS SPECIFICATIONS
TECHNICIAN Richard LeVan RUN NUMBER: 112196.1001

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

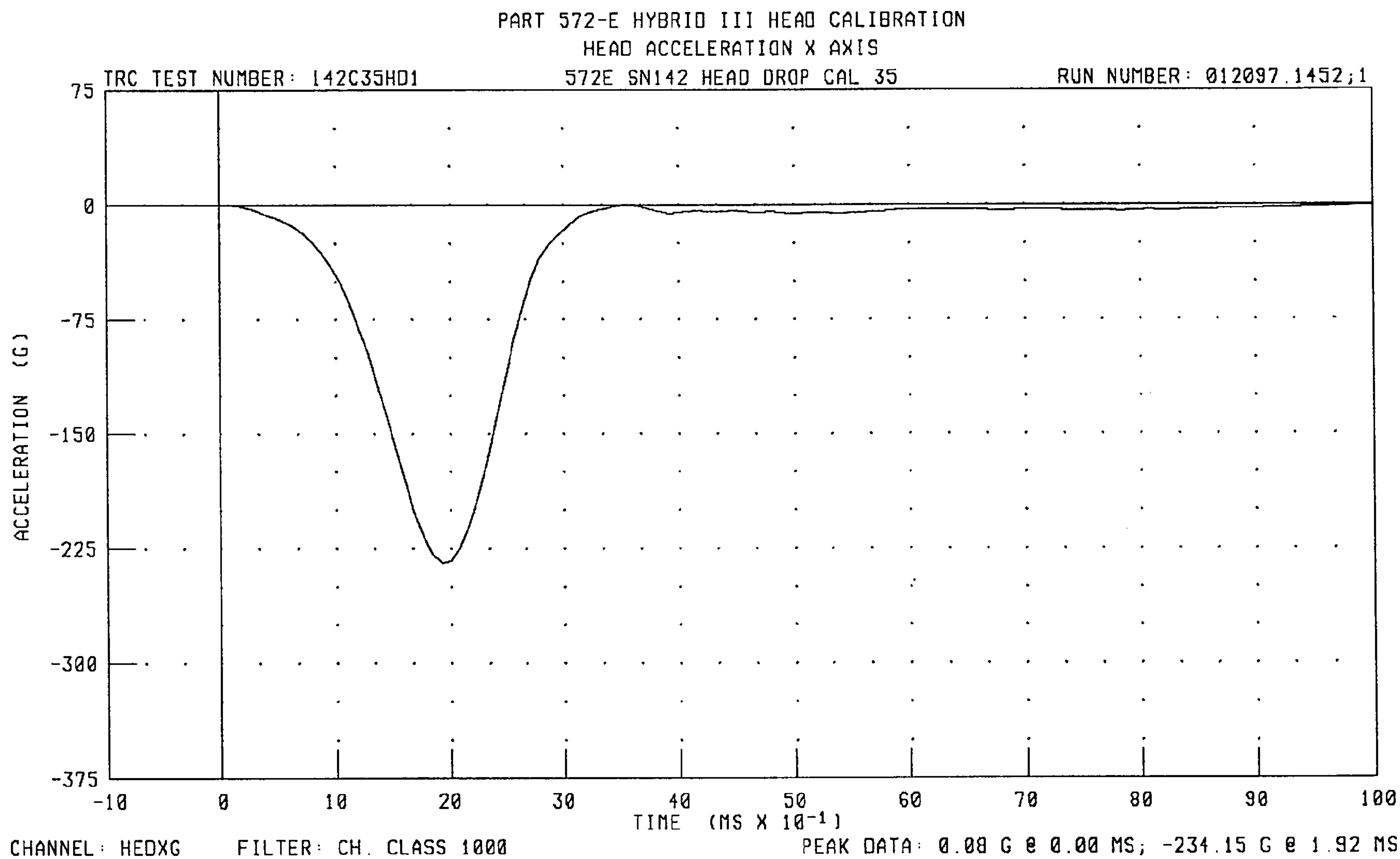
HYBRID III 21-NOV-96

TRC INC. TEST NO: 142C35HD1 572E SN142 HEAD DROP CAL 35

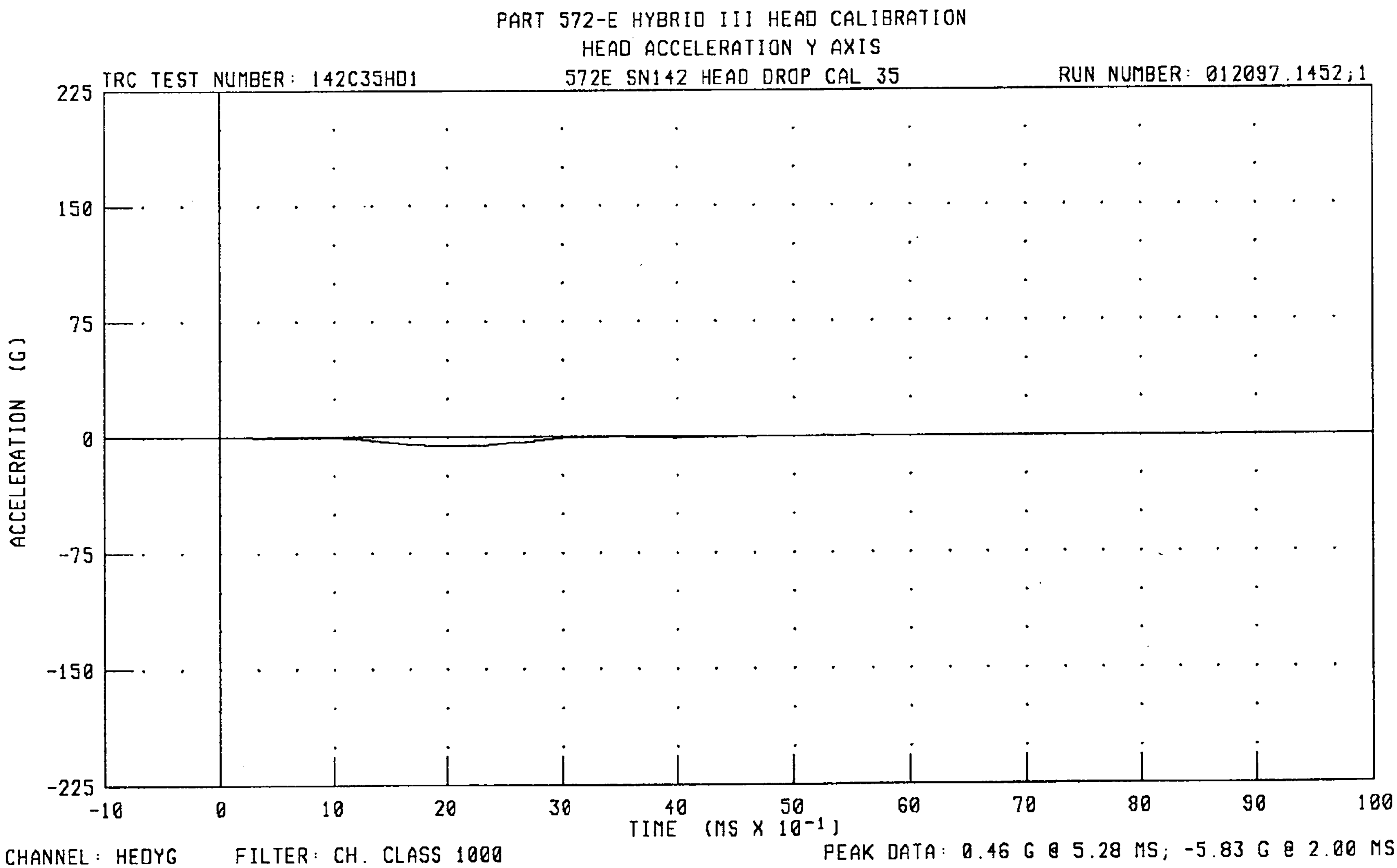
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	30.0 %
PEAK RESULTANT ACCELERATION	225 - 275 G	266.14 G
PEAK LATERAL ACCELERATION	15 G MAX	-5.82 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard Le Van RUN NUMBER: 112196.1628;1


PART 572-E HYBRID III HEAD CALIBRATION
HEAD ACCELERATION X AXIS
TRC TEST NUMBER: 142C35HD1
572E SN142 HEAD DROP CAL 35
RUN NUMBER: 012097.1452;1
75
0
-75
-150
-225
-300
-375
ACCELERATION (G)
-10
0
10
20
30
40
50
60
70
80
90
100
TIME (MS X 10^-1)
CHANNEL: HEDXG
FILTER: CH. CLASS 1000
PEAK DATA: 0.08 G @ 0.00 MS; -234.15 G @ 1.92 MS

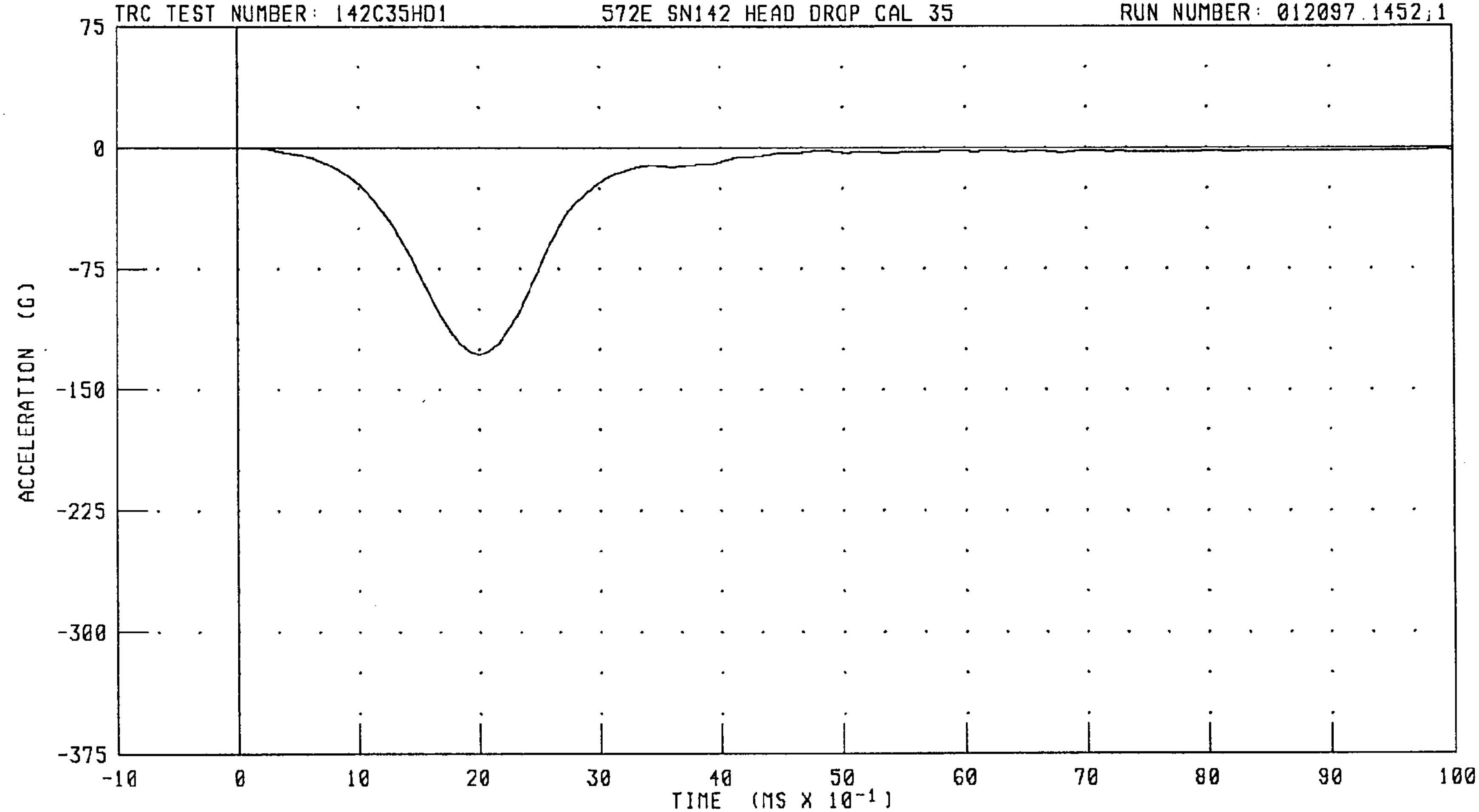
961212


PART 572-E HYBRID III HEAD CALIBRATION
HEAD ACCELERATION Y AXIS
TRC TEST NUMBER: 142C35HD1
572E SN142 HEAD DROP CAL 35
RUN NUMBER: 012097.1452;1
225
150
75
0
-75
-150
-225
ACCELERATION (G)
-10
0
10
20
30
40
50
60
70
80
90
100
TIME (MS X 10^-1)
CHANNEL: HEDYG
FILTER: CH. CLASS 1000
PEAK DATA: 0.46 G @ 5.28 MS; -5.83 G @ 2.00 MS

961212

PART 572-E HYBRID III HEAD CALIBRATION
HEAD ACCELERATION Z AXIS

TRC TEST NUMBER: 142C35HD1   572E SN142 HEAD DROP CAL 35   RUN NUMBER: 012097.1452;1

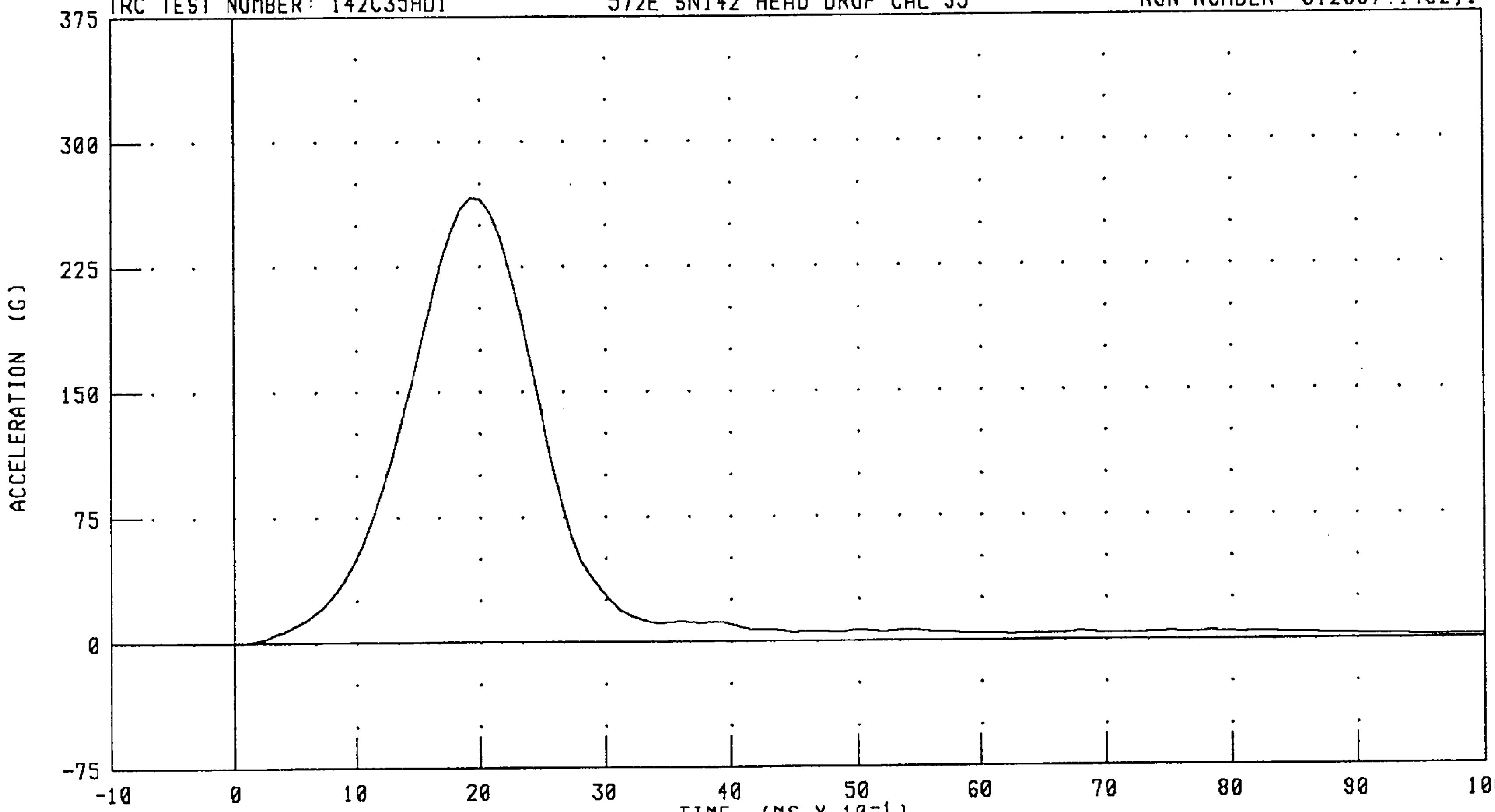


CHANNEL: HEDZG   FILTER: CH. CLASS 1000   PEAK DATA: -0.06 G @ 0.08 MS; -128.10 G @ 2.00 MS

PART 572-E HYBRID III HEAD CALIBRATION
HEAD RESULTANT ACCELERATION
572E SN142 HEAD DROP CAL 35

TRC TEST NUMBER: 142C35HD1

RUN NUMBER: 012097.1452;1



CHANNEL: HEDRG   FILTER: CH. CLASS 1000

PEAK DATA: 266.15 G @ 1.92 MS; 0.08 G @ 0.08 MS

TRANSPORTATION RESEARCH CENTER INC.

NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

HYBRID III 26-NOV-96

TRC INC. TEST NO: 142C35NF9 572E SN142 NECK FLEXION CAL35

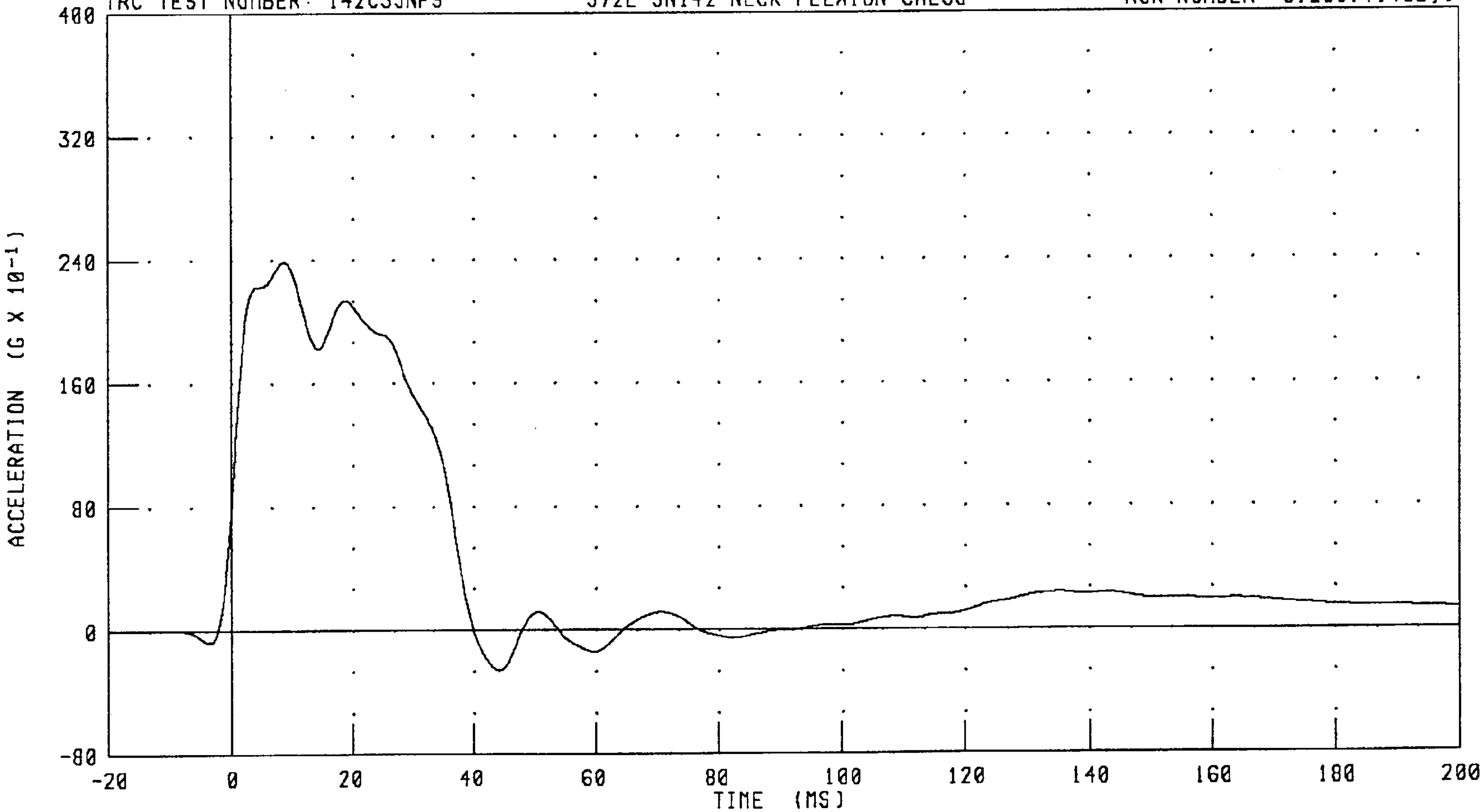
TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	36.0 %
IMPACT VELOCITY		6.89 - 7.13 M/S	7.06 M/S
PENDULUM DECELERATION	10 MS	22.50 - 27.50 G	23.20 G
	20 MS	17.60 - 22.60 G	20.99 G
	30 MS	12.50 - 18.50 G	15.21 G
MAX PENDULUM G		29 G MAX	23.87 G
MAX PENDULUM G ABOVE 30 MS		29 G MAX	15.16 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		34 - 42 MS	37.36 MS
D PLANE ROTATION	MAX	64 - 78 DEG.	76.71 DEG.
	TIME	57 - 64 MS	58.16 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX	88.2 - 108.5 NM	100.91 NM
	TIME	47 - 58 MS	51.60 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		113 - 128 MS	115.60 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		97 - 107 MS	99.84 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard LeVan RUN NUMBER: 112696.1016;1

PART 572-E HYBRID III NECK FLEXION CALIBRATION
PENDULUM DECELERATION

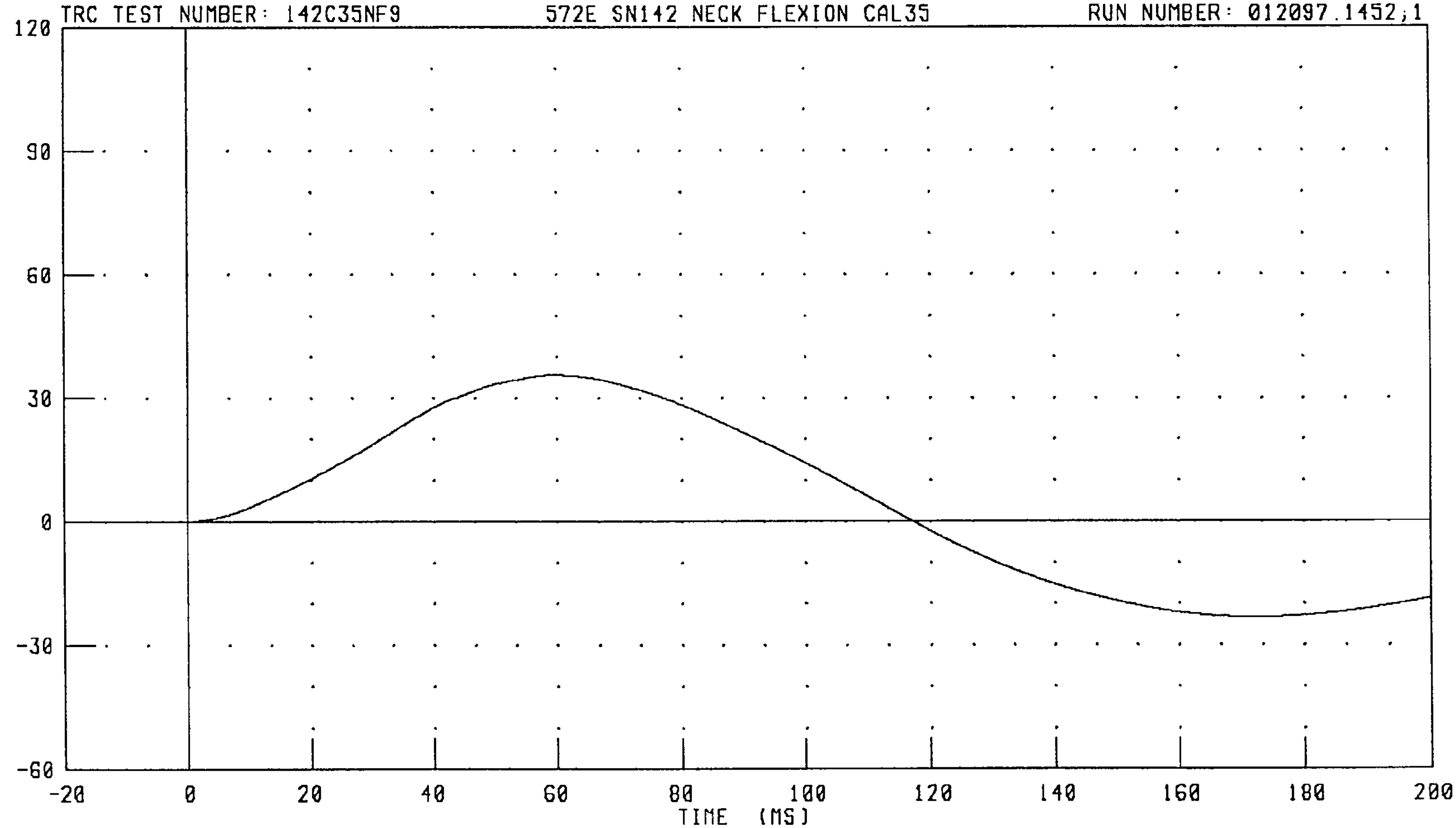
TRC TEST NUMBER: 142C35NF9 572E SN142 NECK FLEXION CAL35 RUN NUMBER: 012097.1452;1



CHANNEL: PENXG FILTER: CH. CLASS 60 PEAK DATA: 23.88 G @ 8.64 MS; -2.59 G @ 44.08 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION
ROTATION ABOUT BASE OF NECK

TRC TEST NUMBER: 142C35NF9 572E SN142 NECK FLEXION CAL35 RUN NUMBER: 012097.1452;1

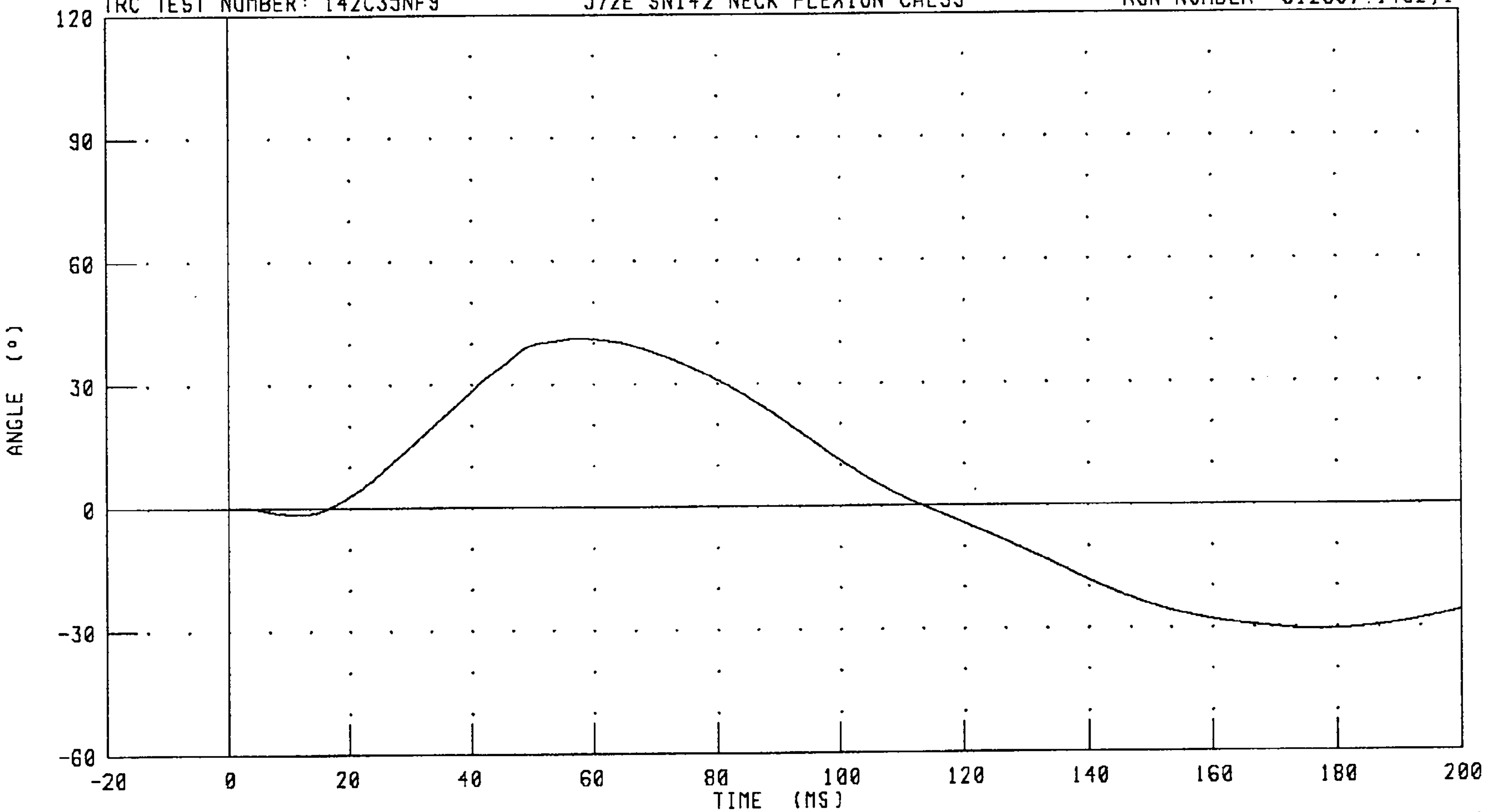


CHANNEL: BETA FILTER: CH. CLASS 60 PEAK DATA: 35.54 ° @ 59.36 MS; -23.31 ° @ 171.84 MS

961212

PART 572-E HYBRID III NECK FLEXION CALIBRATION
ROTATION ABOUT OCCIPITAL CONDYLE

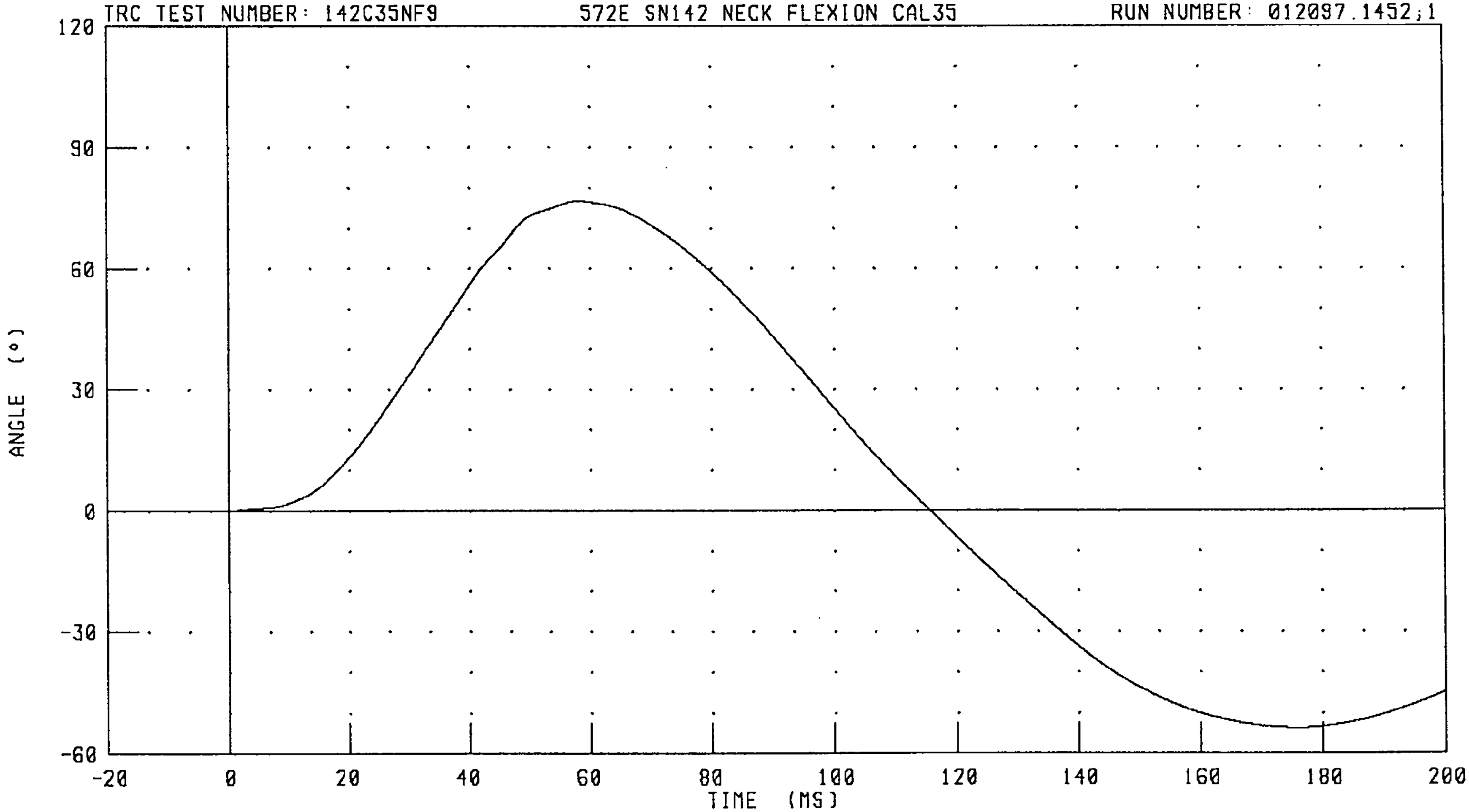
TRC TEST NUMBER: 142C35NF9 572E SN142 NECK FLEXION CAL35 RUN NUMBER: 012097.1452;1



CHANNEL: THETA FILTER: CH. CLASS 60 PEAK DATA: 41.25 ° @ 57.60 MS; -30.57 ° @ 177.52 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION
TOTAL ROTATION

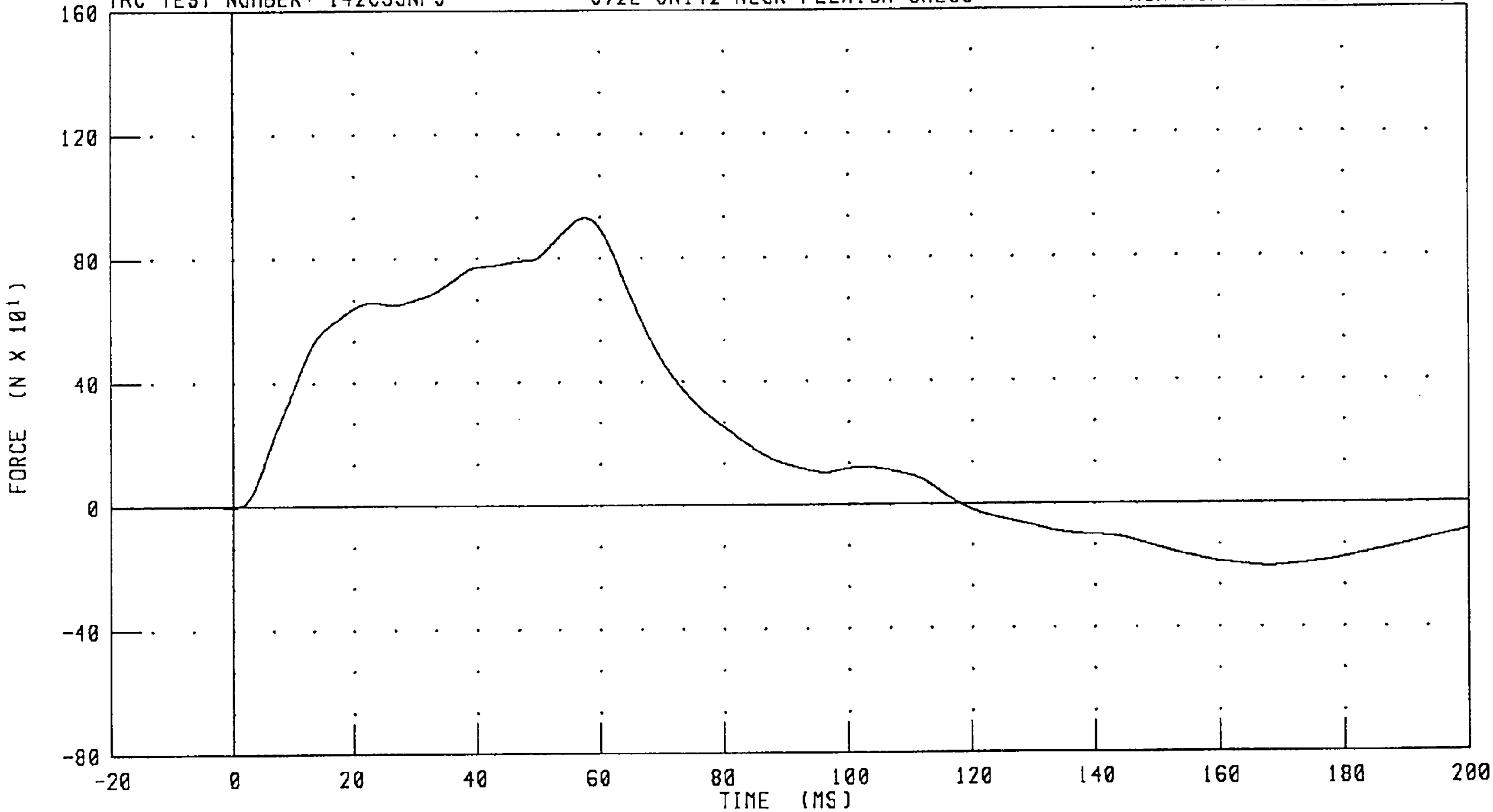
TRC TEST NUMBER: 142C35NF9 572E SN142 NECK FLEXION CAL35 RUN NUMBER: 012097.1452;1



CHANNEL: TOTAN FILTER: CH. CLASS 60 PEAK DATA: 76.72 ° @ 58.16 MS; -53.76 ° @ 176.00 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION
NECK FORCE X AXIS

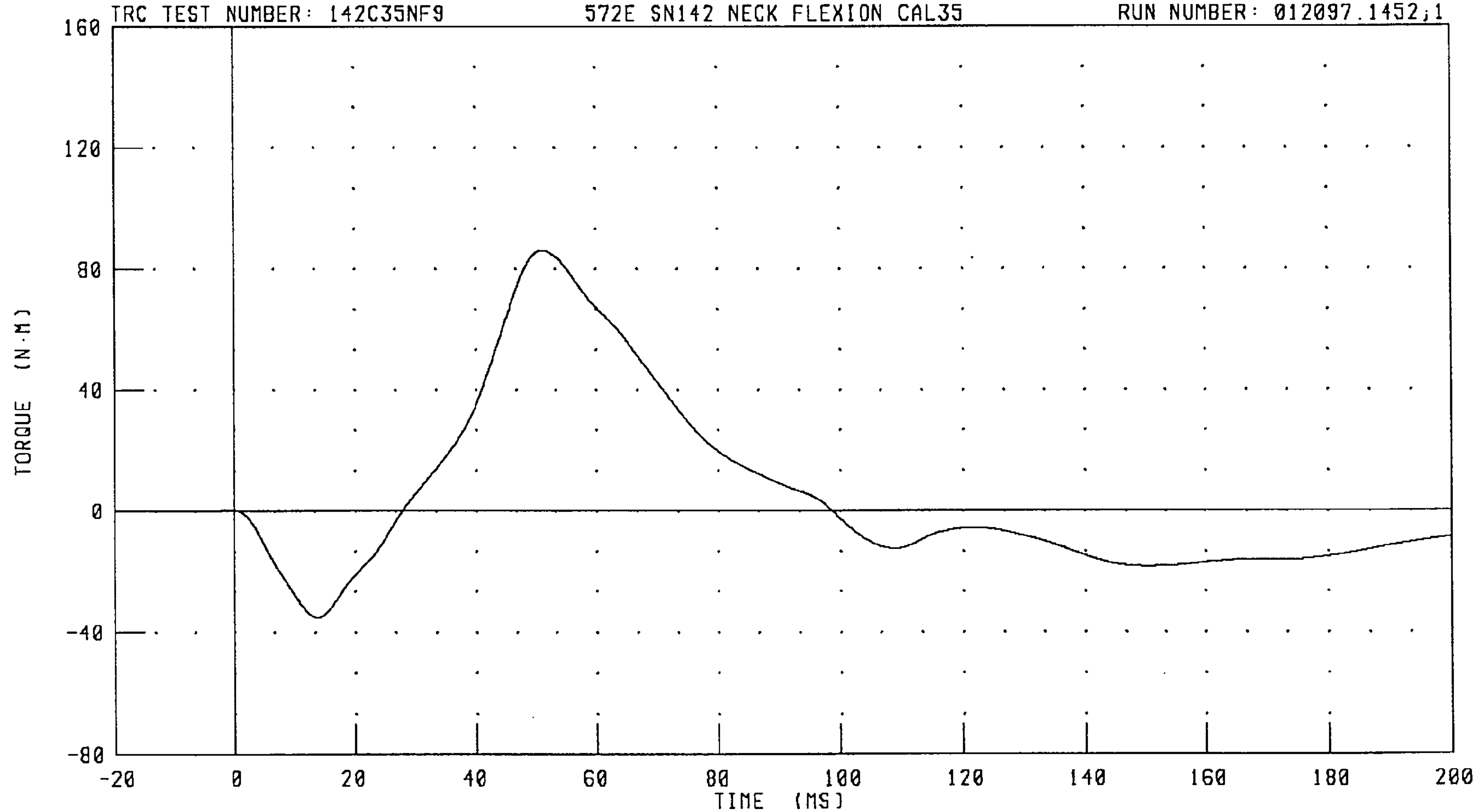
TRC TEST NUMBER: 142C35NF9   572E SN142 NECK FLEXION CAL35   RUN NUMBER: 012097.1452;1



CHANNEL: NEKXF   FILTER: CH. CLASS 60   PEAK DATA: 931.02 N @ 57.60 MS; -204.86 N @ 167.76 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION
NECK MOMENT Y AXIS

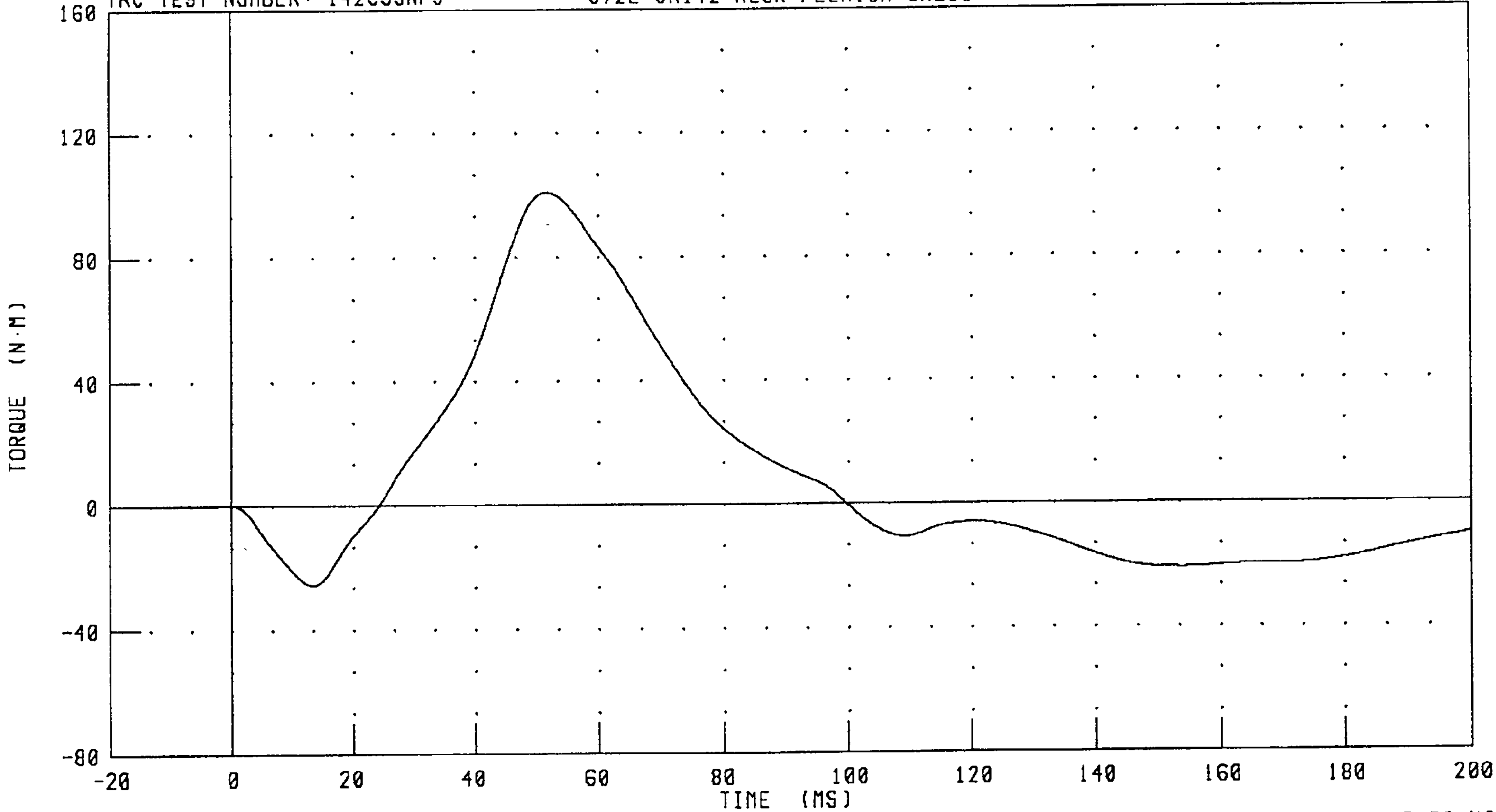
TRC TEST NUMBER: 142C35NF9 572E SN142 NECK FLEXION CAL35 RUN NUMBER: 012097.1452;1



CHANNEL: NEKYM FILTER: CH. CLASS 60 PEAK DATA: 86.21 N·M @ 51.20 MS; -35.11 N·M @ 13.76 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION
TOTAL MOMENT ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: 142C35NF9 572E SN142 NECK FLEXION CAL35 RUN NUMBER: 012097.1452;1



CHANNEL: NEKOM FILTER: CH. CLASS 60 PEAK DATA: 100.91 N·M @ 51.60 MS; -25.65 N·M @ 13.36 MS

TRANSPORTATION RESEARCH CENTER INC.

NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

HYBRID III 25-NOV-96

TRC INC. TEST NO: 142C35NE2 572E SN142 NECK EXT. CAL35

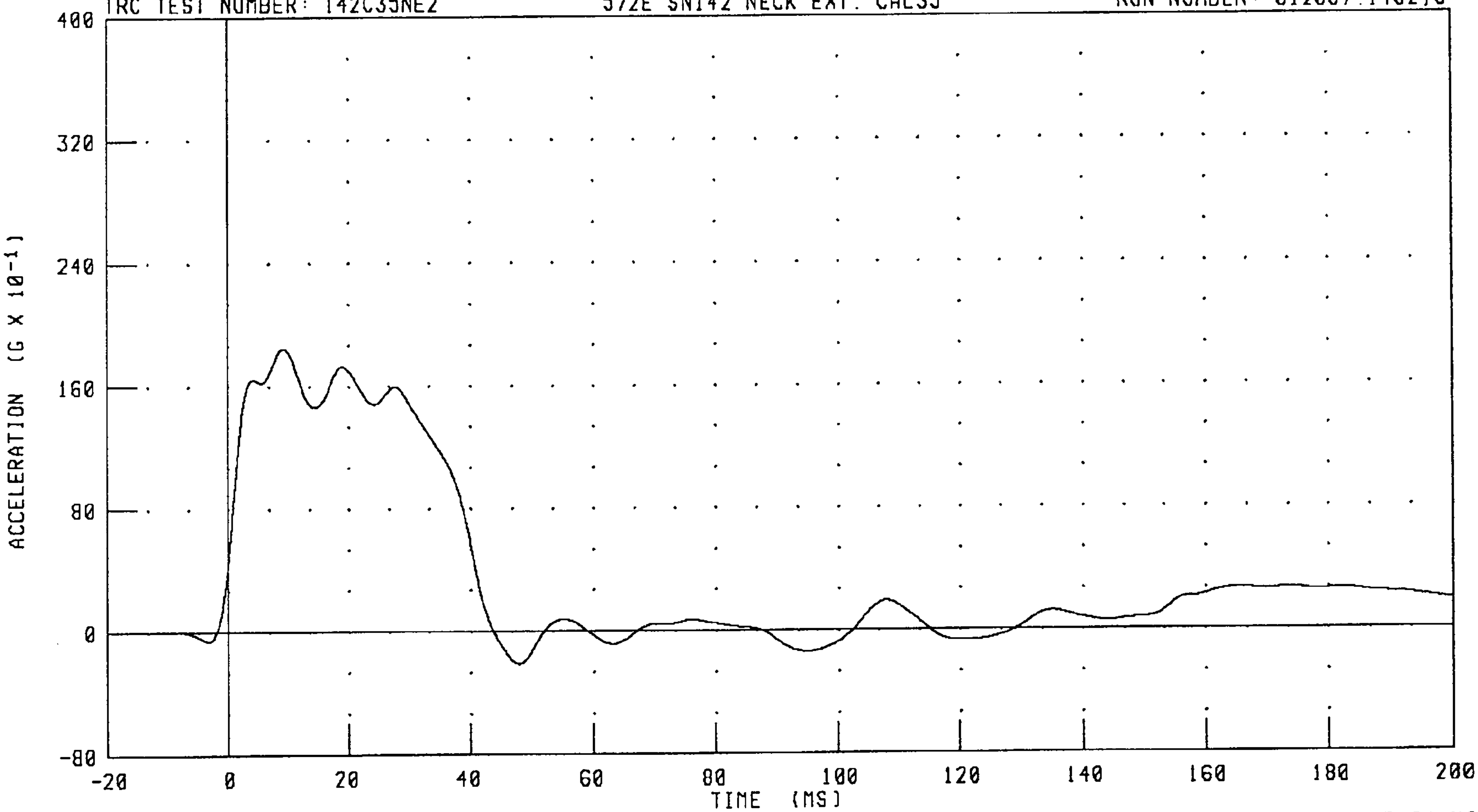
TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6 - 22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	45.0 %
IMPACT VELOCITY		5.95 - 6.19 M/S	6.10 M/S
PENDULUM DECELERATION	10 MS	17.20 - 21.20 G	18.10 G
	20 MS	14.00 - 19.00 G	17.00 G
	30 MS	11.00 - 16.00 G	14.83 G
MAX PENDULUM G		22 G MAX	18.45 G
MAX PENDULUM G ABOVE 30 MS		22 G MAX	14.78 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		38 - 46 MS	40.32 MS
D PLANE ROTATION	MAX	81 - 106 DEG.	96.33 DEG.
	TIME	72 - 82 MS	72.08 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN	-80.0/-52.9 NM	-75.08 NM
	TIME	65 - 79 MS	68.72 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		147 - 174 MS	151.84 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		120 - 148 MS	134.56 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard LeVan RUN NUMBER: 112596.1304;3

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
PENDULUM DECELERATION

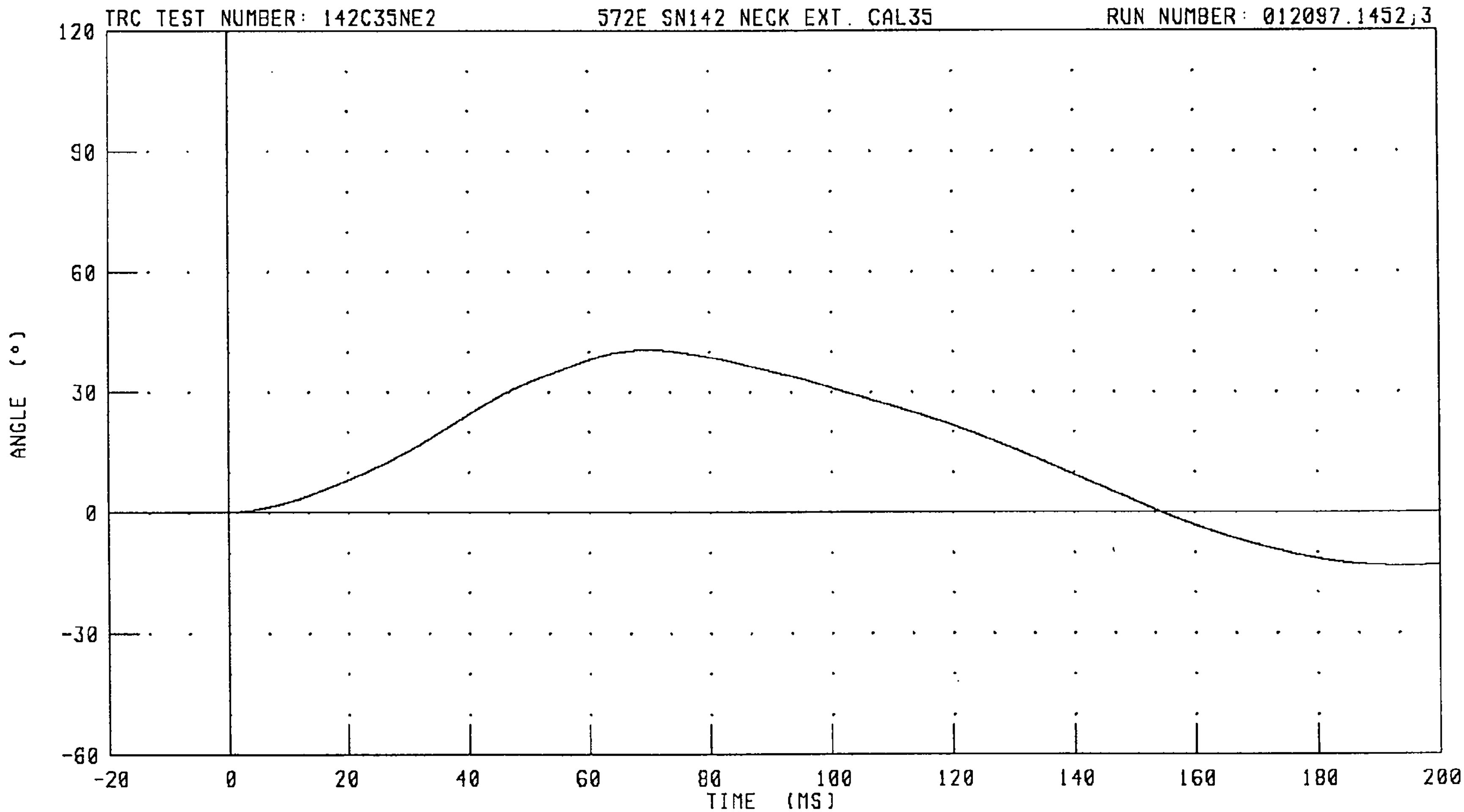
TRC TEST NUMBER: 142C35NE2   572E SN142 NECK EXT. CAL35   RUN NUMBER: 012097.1452;3



CHANNEL: PENXG   FILTER: CH. CLASS 60   PEAK DATA: 18.46 G @ 9.04 MS; -2.12 G @ 47.84 MS

961212

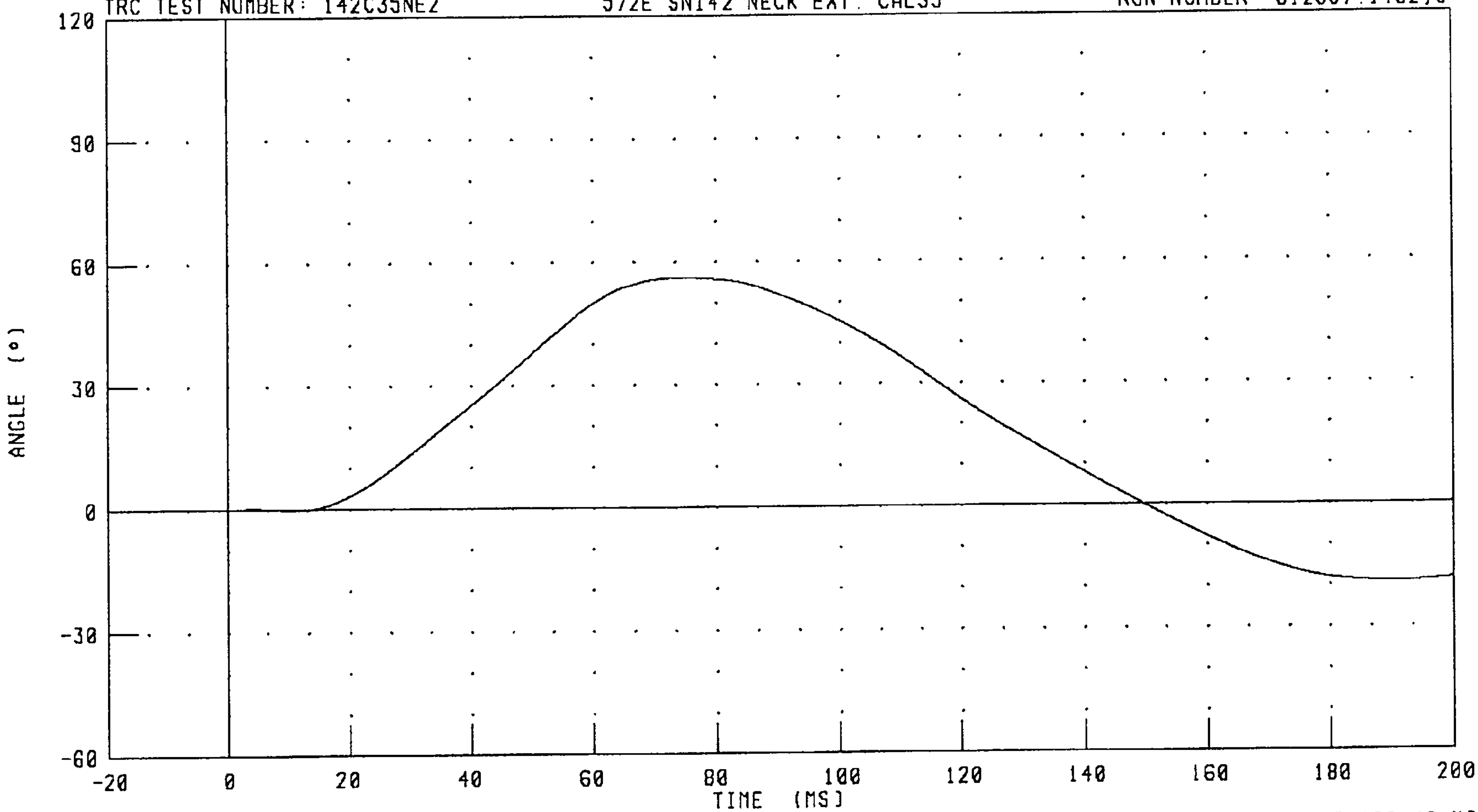
PART 572-E HYBRID III NECK EXTENSION CALIBRATION
ROTATION ABOUT BASE OF NECK



CHANNEL: BETA FILTER: CH. CLASS 60 PEAK DATA: 40.47 ° @ 69.68 MS; -13.37 ° @ 194.40 MS

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
ROTATION ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: 142C35NE2 572E SN142 NECK EXT. CAL35 RUN NUMBER: 012097.1452;3

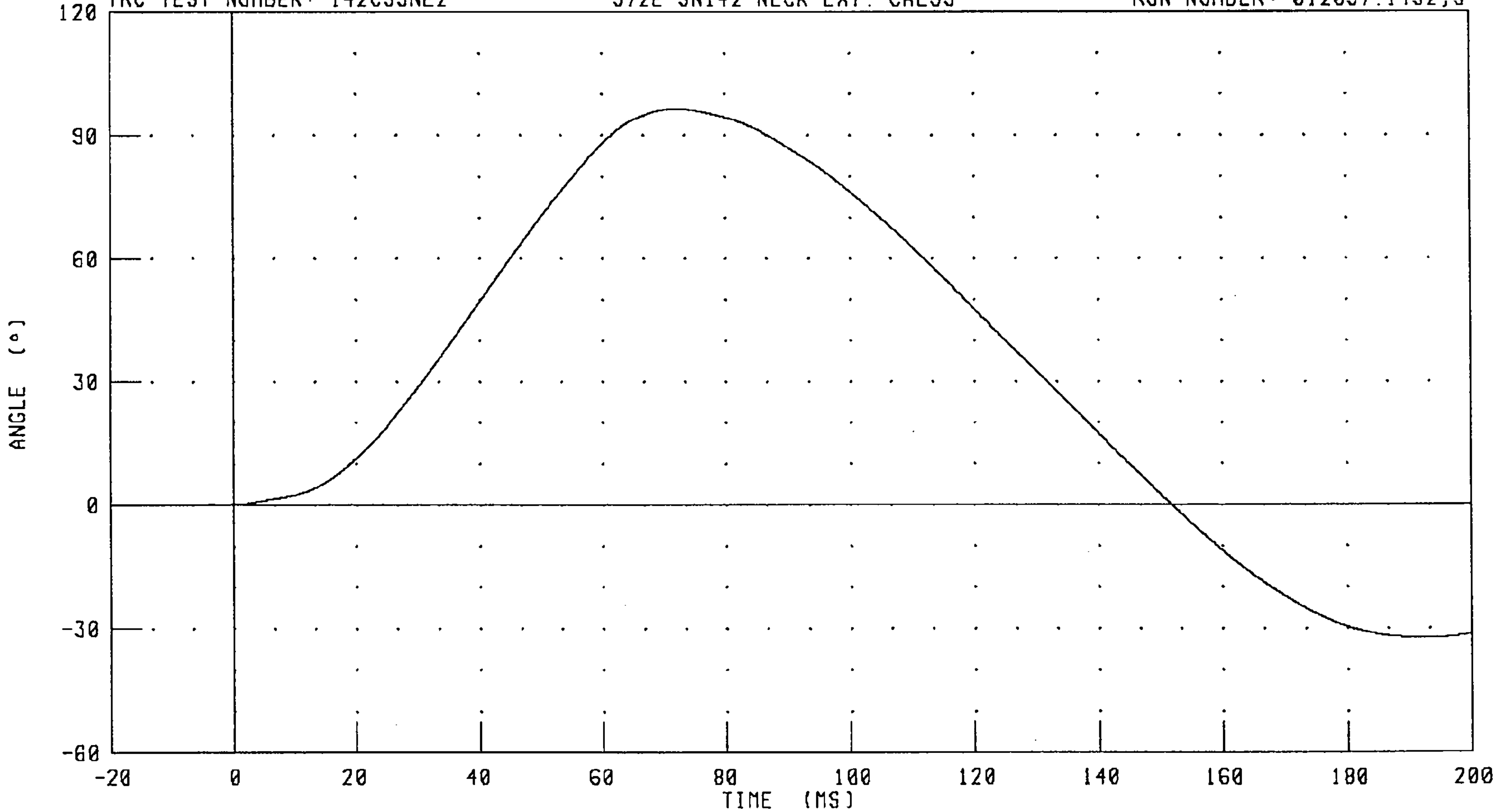


CHANNEL: THETA FILTER: CH. CLASS 60 PEAK DATA: 56.18 ° @ 74.64 MS; -19.00 ° @ 190.48 MS

PART 572-E HYBRID III NECK EXTENSION CALIBRATION

TOTAL ROTATION

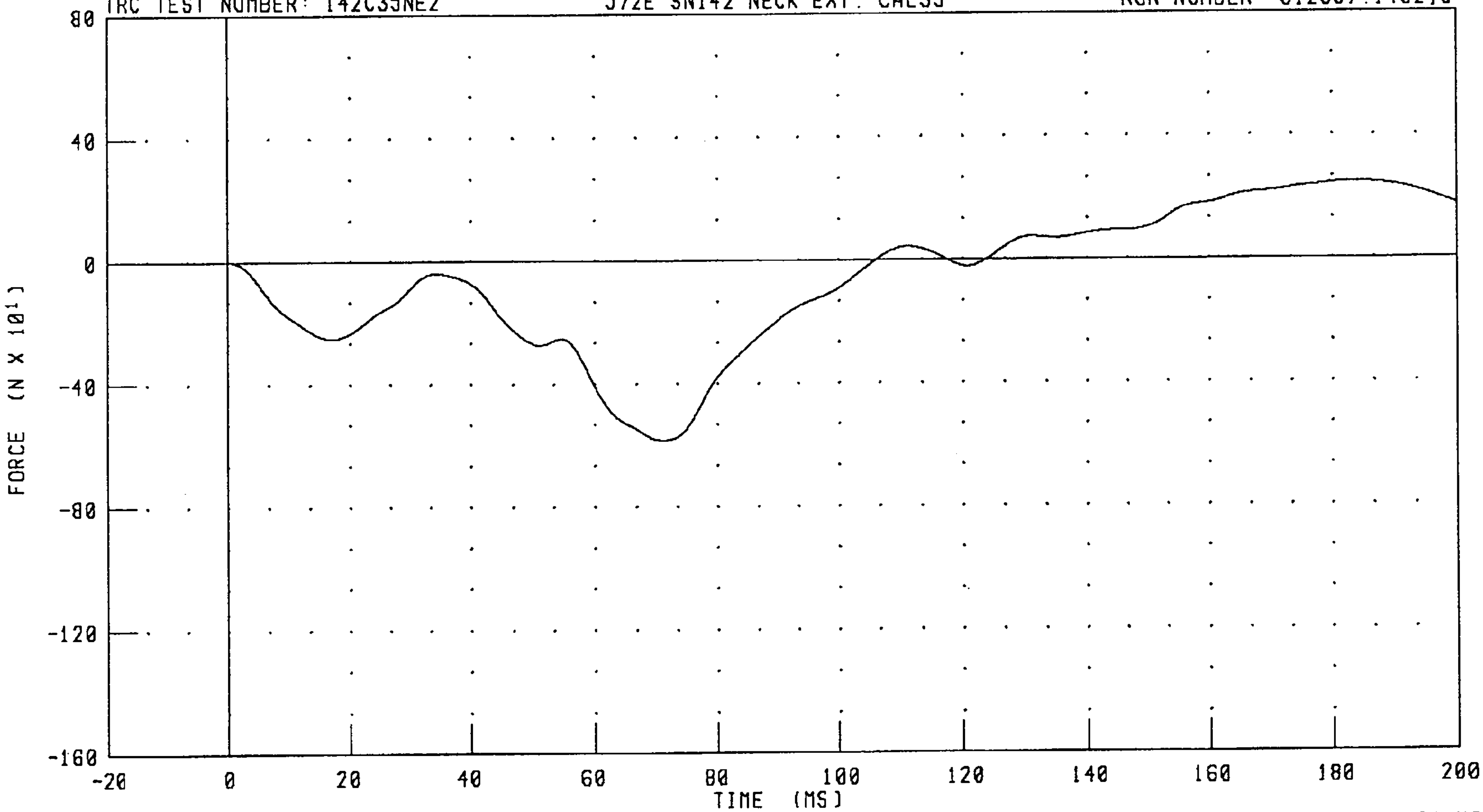
TRC TEST NUMBER: 142C35NE2 572E SN142 NECK EXT. CAL35 RUN NUMBER: 012097.1452;3



CHANNEL: TOTAN FILTER: CH. CLASS 60 PEAK DATA: 96.34 ° @ 72.08 MS; -32.31 ° @ 192.72 MS

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
NECK FORCE X AXIS

TRC TEST NUMBER: 142C35NE2 572E SN142 NECK EXT. CAL35 RUN NUMBER: 012097.1452;3

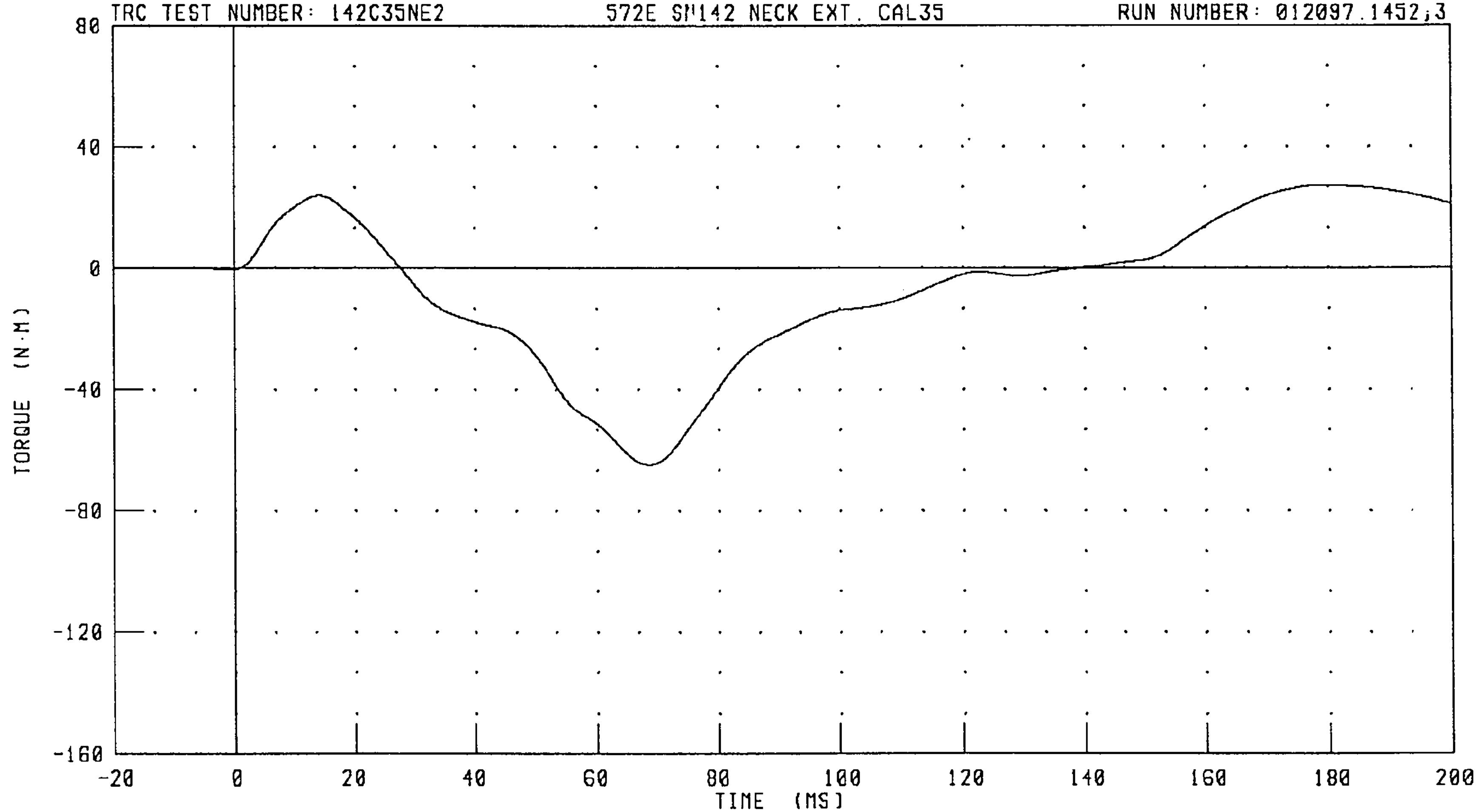


CHANNEL: NEKXF FILTER: CH. CLASS 60 PEAK DATA: 248.09 N @ 182.96 MS; -584.95 N @ 71.04 MS

961212

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
NECK MOMENT Y AXIS

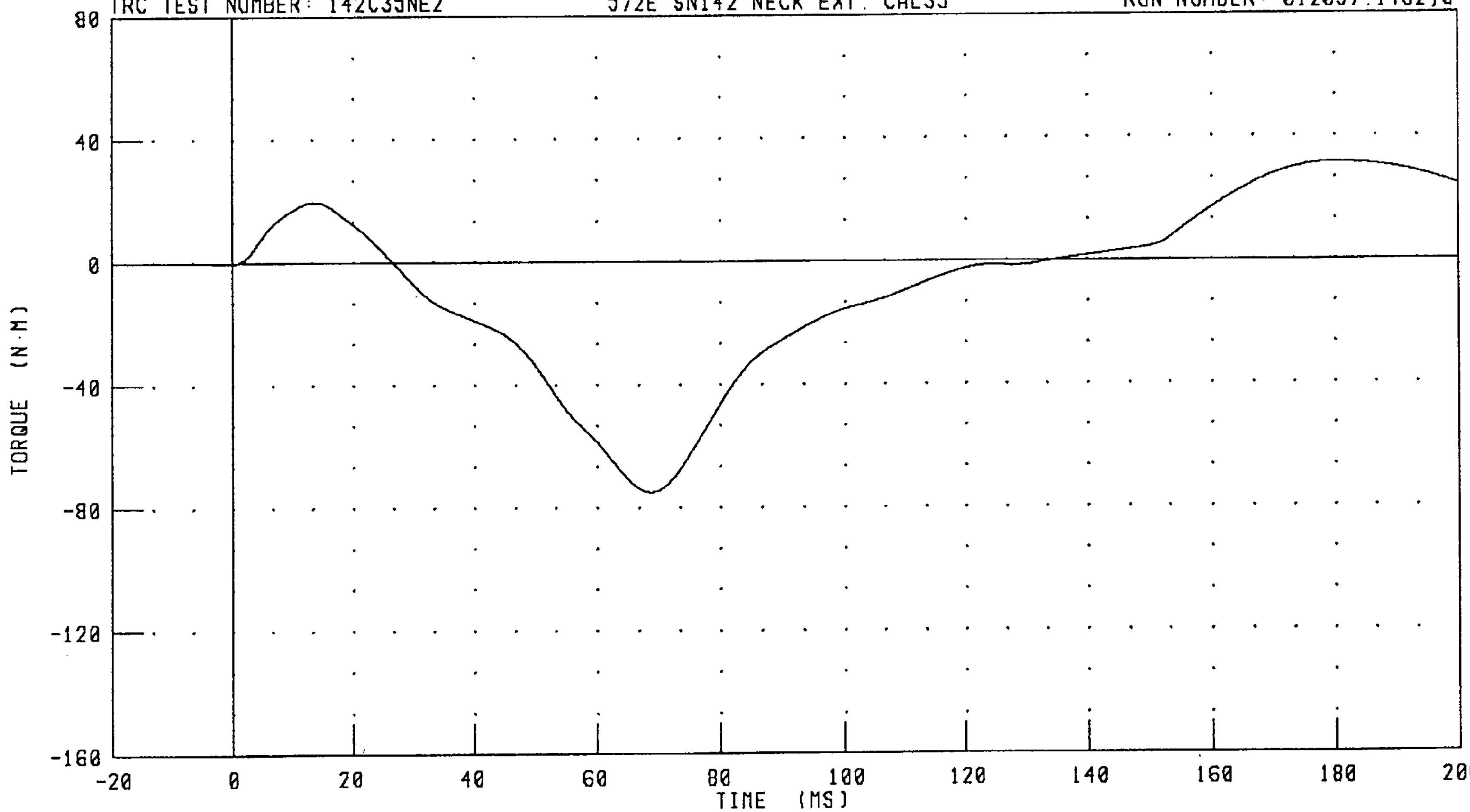
TRC TEST NUMBER: 142C35NE2 572E SN142 NECK EXT. CAL35 RUN NUMBER: 012097.1452;3



CHANNEL: NEKYM FILTER: CH. CLASS 60 PEAK DATA: 27.17 N·M @ 179.28 MS; -64.91 N·M @ 68.40 MS

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
TOTAL MOMENT ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: 142C35NE2 572E SN142 NECK EXT. CAL35 RUN NUMBER: 012097.1452;3



CHANNEL: NEKOM FILTER: CH. CLASS 60 PEAK DATA: 31.49 N·M @ 180.00 MS; -75.08 N·M @ 68.72 MS

961212

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III 26-NOV-96

TRC INC. TEST NO: 142C35TH1 572E SN 142 H.S.THORAX CAL 35

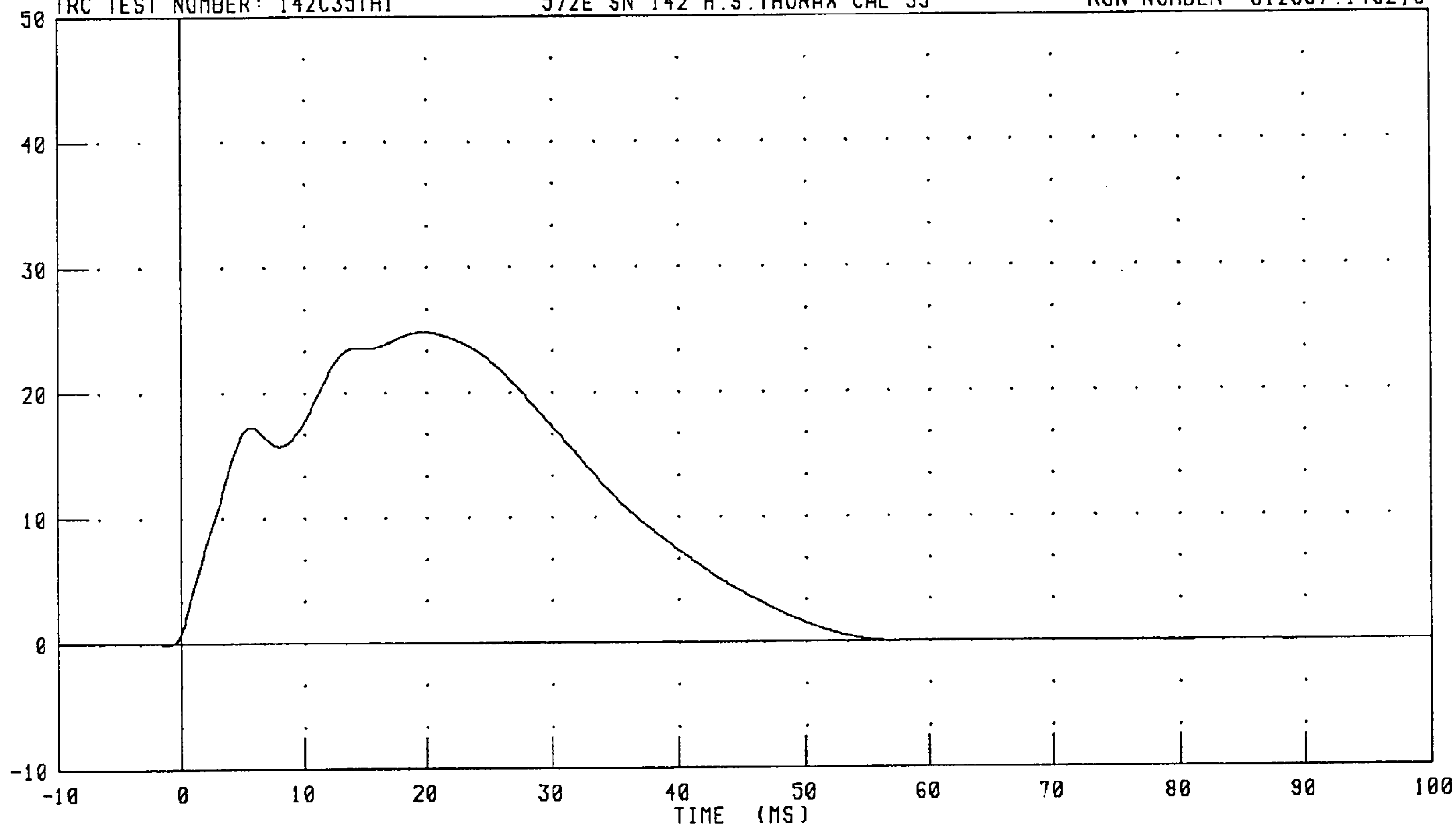
TEST PARAMETER	HIGH SPEED TEST SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6-22.2 DEG. C	21.4 DEG. C
RELATIVE HUMIDITY	10 - 70 %	36.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.68 M/S
MAXIMUM DEFLECTION	63.5 - 72.6 MM	71.7 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5687. N
INTERNAL HYSTERESIS	69% - 85%	71.5%

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard Le Van RUN NUMBER: 011097.1028;3

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM DECELERATION

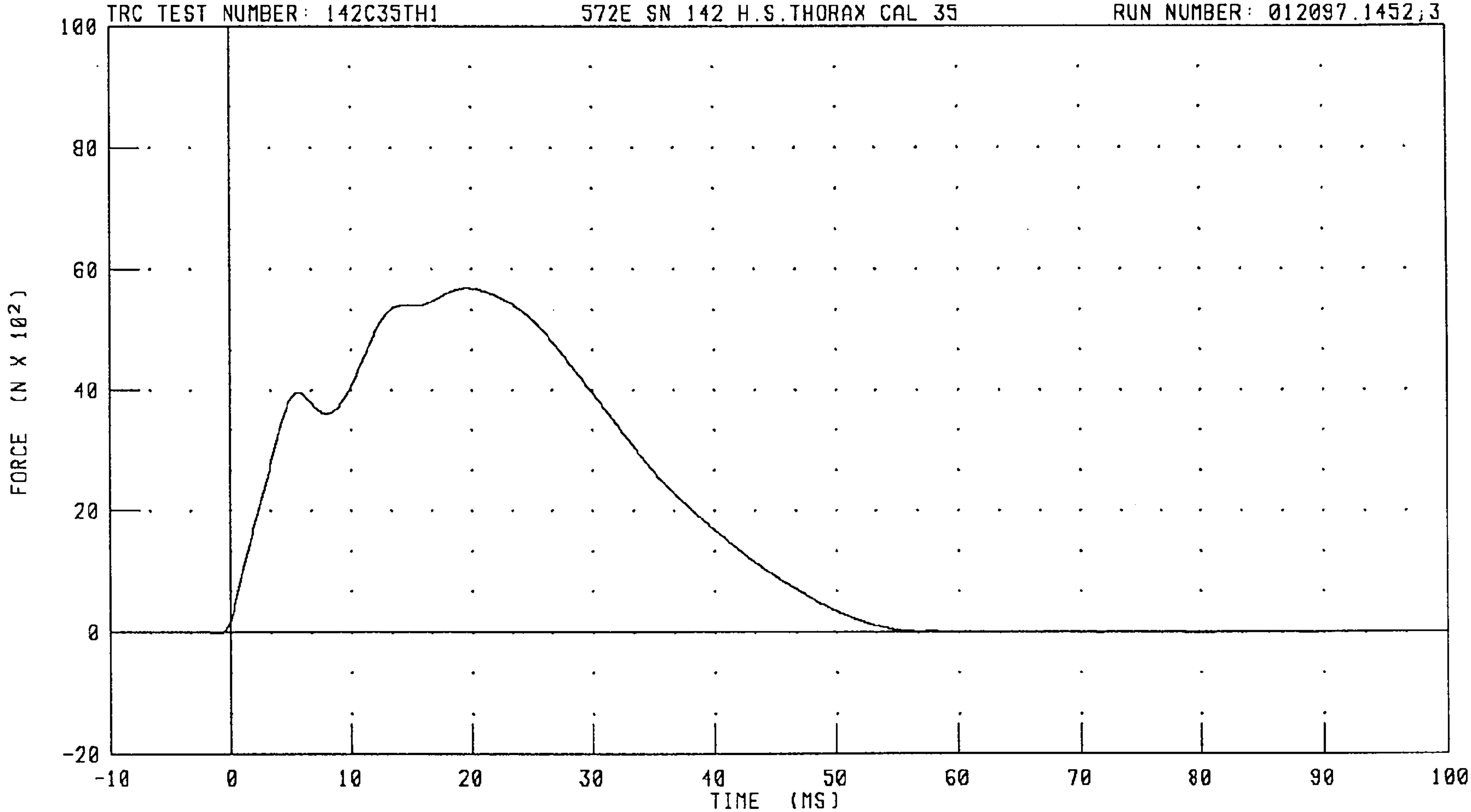
TRC TEST NUMBER: 142C35TH1 572E SN 142 H.S. THORAX CAL 35 RUN NUMBER: 012097.1452;3



CHANNEL: PENXG FILTER: CH. CLASS 180 PEAK DATA: 24.83 G @ 19.68 MS; -0.08 G @ -1.04 MS

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM FORCE

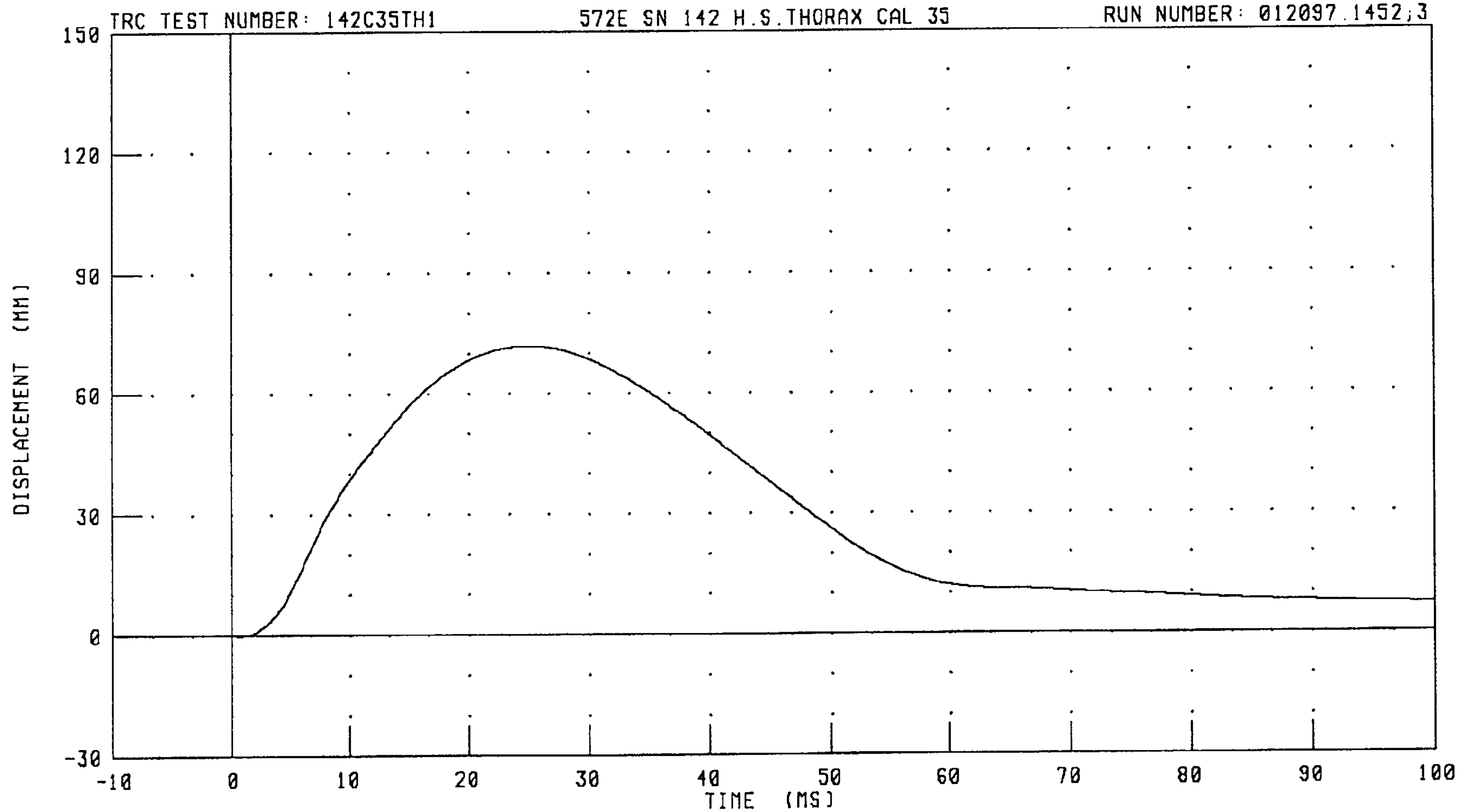
TRC TEST NUMBER: 142C35TH1 572E SN 142 H.S.THORAX CAL 35 RUN NUMBER: 012097.1452;3



CHANNEL: PENXF FILTER: CH. CLASS 180 PEAK DATA: 5687.04 N @ 19.68 MS; -17.59 N @ -1.04 MS

961212

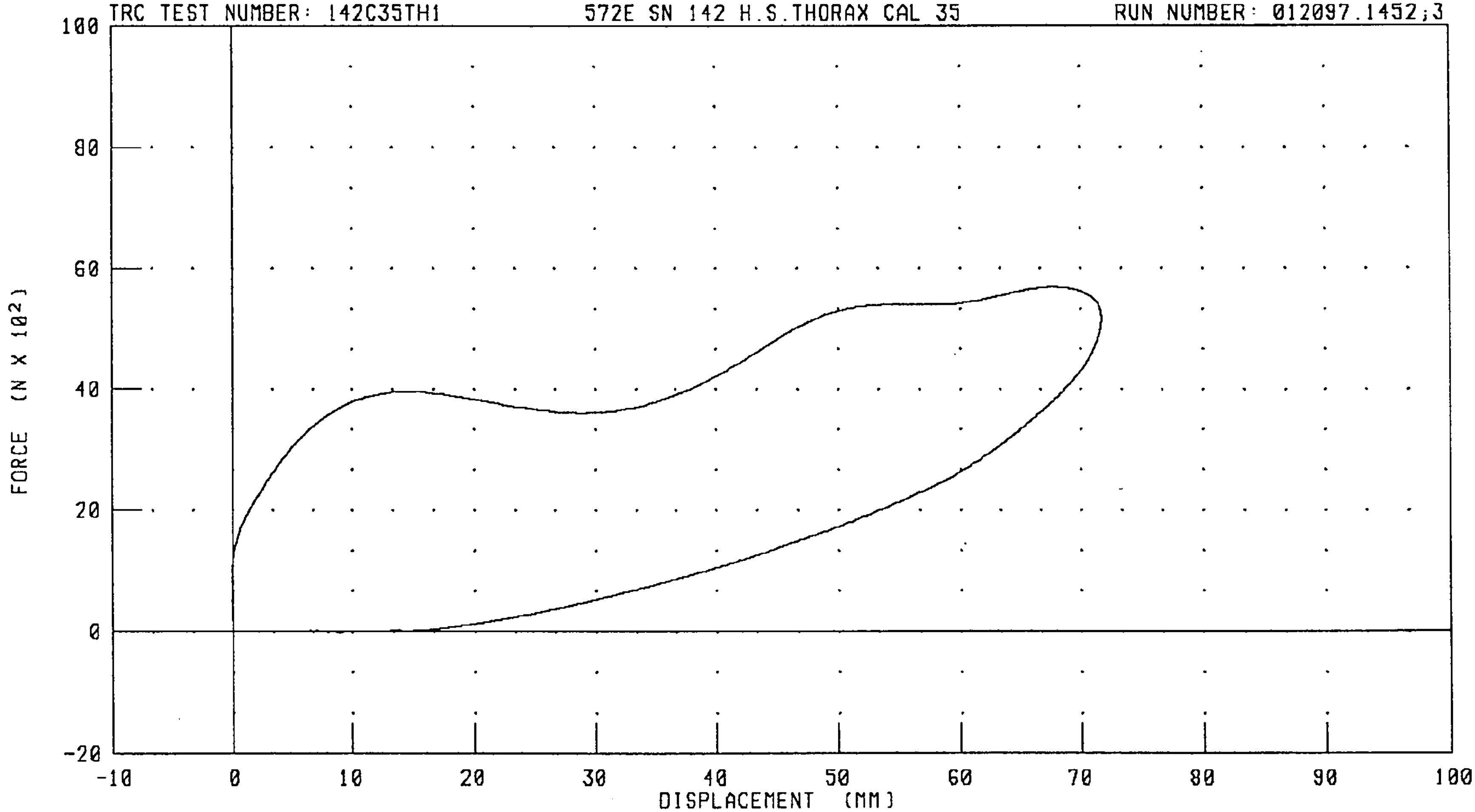
PART 572-E HYBRID III THORAX CALIBRATION
STERNUM DISPLACEMENT



CHANNEL: CSTXD FILTER: CH. CLASS 180 PEAK DATA: 71.79 MM @ 25.04 MS; -0.07 MM @ 0.72 MS

PART 572-E HYBRID III THORAX CALIBRATION
CHEST DISPLACEMENT VS PENDULUM FORCE

TRC TEST NUMBER: 142C35TH1 572E SN 142 H.S.THORAX CAL 35 RUN NUMBER: 012097.1452;3



CHANNEL: CSTXD FILTER: CH. CLASS 180 PEAK DATA: 71.79 MM @ 25.04 MS; -0.07 MM @ 0.72 MS
PENXF CH. CLASS 180 5687.04 N @ 19.68 MS; -17.59 N @ -1.04 MS

961212

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III 21-NOV-96

TRC INC. TEST NO: 142C35RK1 572E SN142 RIGHT KNEE CAL 35

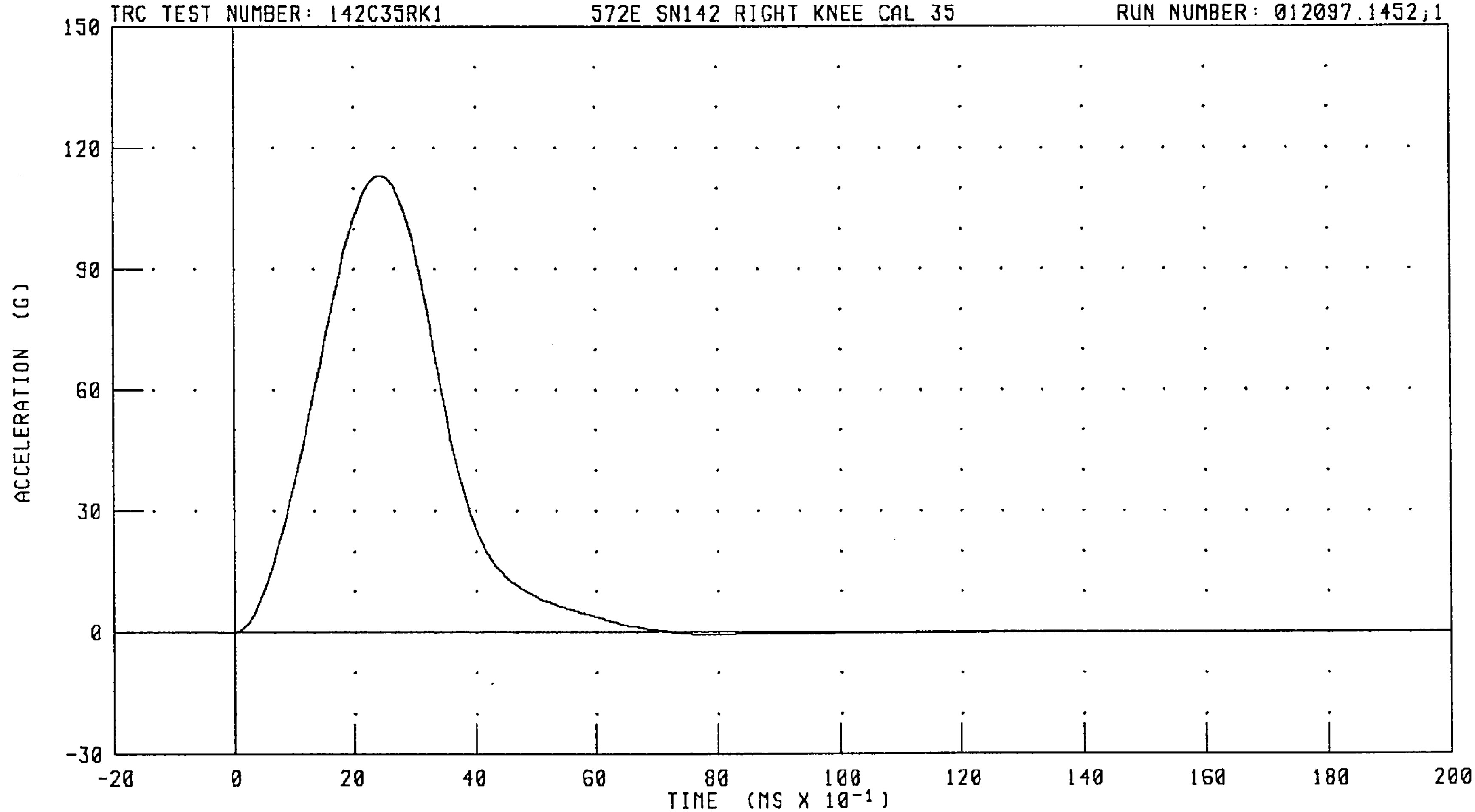
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	30.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.11 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	5535.0 N

TEST MEETS SPECIFICATIONS

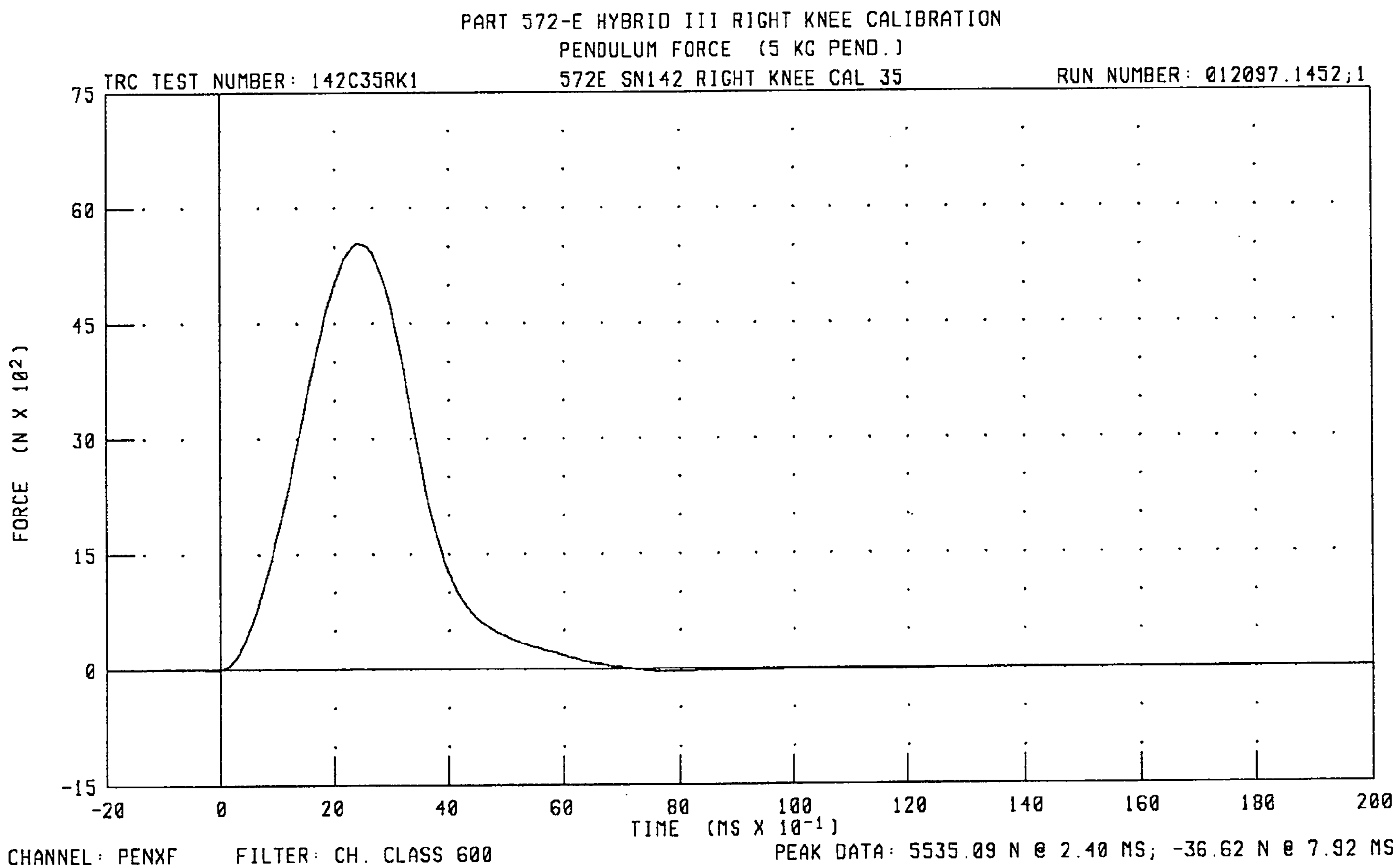
TECHNICIAN Richard LeVan RUN NUMBER: 112196.1509;1

PART 572-E HYBRID III RIGHT KNEE CALIBRATION
PENDULUM DECELERATION (5 KG PEND.)

TRC TEST NUMBER: 142C35RK1 572E SN142 RIGHT KNEE CAL 35 RUN NUMBER: 012097.1452;1



CHANNEL: PENXG FILTER: CH. CLASS 600 PEAK DATA: 113.13 G @ 2.40 MS; -0.75 G @ 7.92 MS


PART 572-E HYBRID III RIGHT KNEE CALIBRATION
PENDULUM FORCE (5 KG PEND.)
TRC TEST NUMBER: 142C35RK1
572E SN142 RIGHT KNEE CAL 35
RUN NUMBER: 012097.1452;1
FORCE (N X 10²)
75
60
45
30
15
0
-15
-20
0
20
40
60
80
100
120
140
160
180
200
TIME (MS X 10⁻¹)
CHANNEL: PENXF
FILTER: CH. CLASS 600
PEAK DATA: 5535.09 N @ 2.40 MS; -36.62 N @ 7.92 MS

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

HYBRID III 21-NOV-96

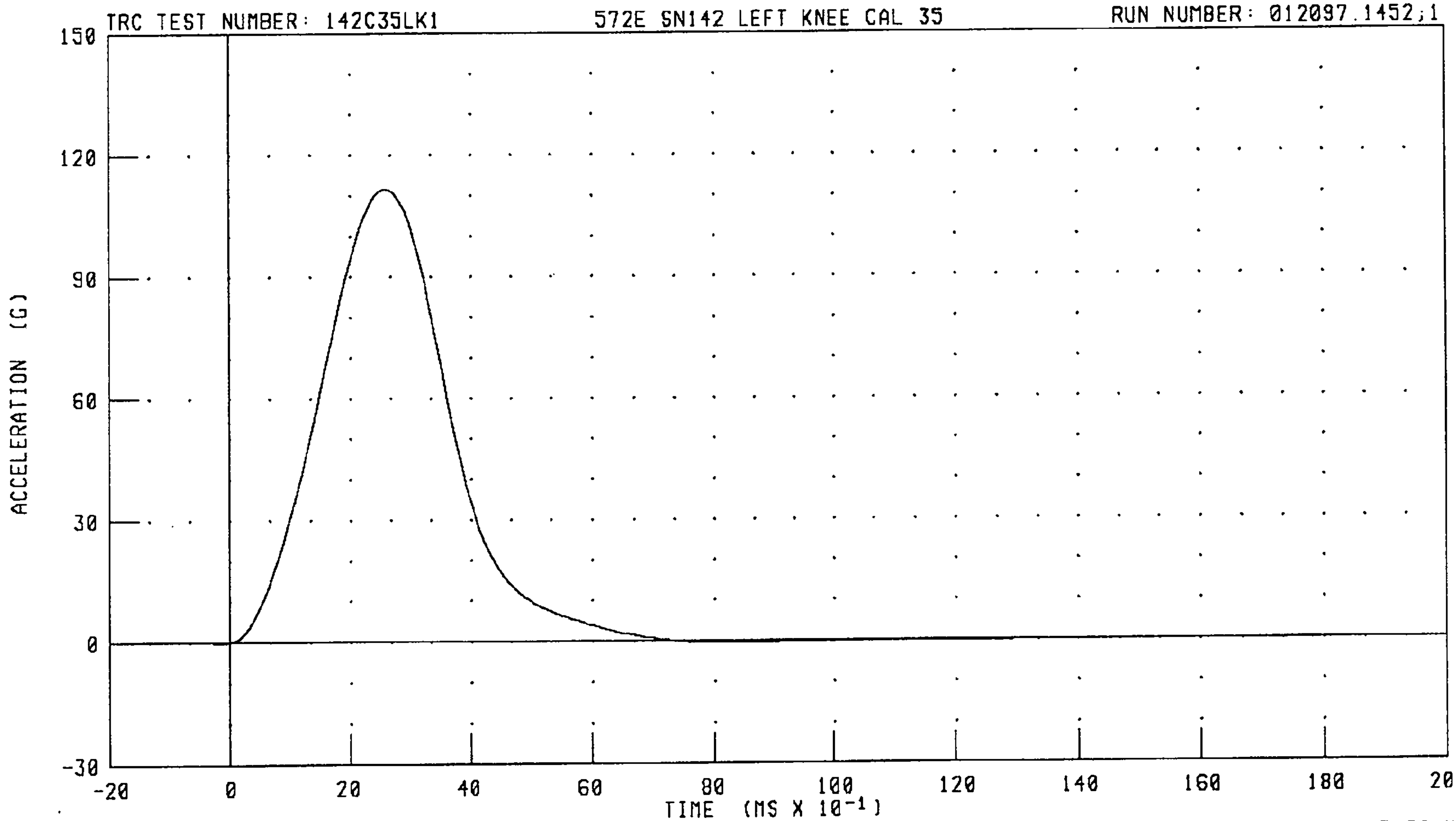
TRC INC. TEST NO: 142C35LK1 572E SN142 LEFT KNEE CAL 35

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	30.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.11 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	5458.0 N

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard LeVan RUN NUMBER: 112196.1506;1

PART 572-E HYBRID III LEFT KNEE CALIBRATION
PENDULUM DECELERATION (5 KG PEND.)

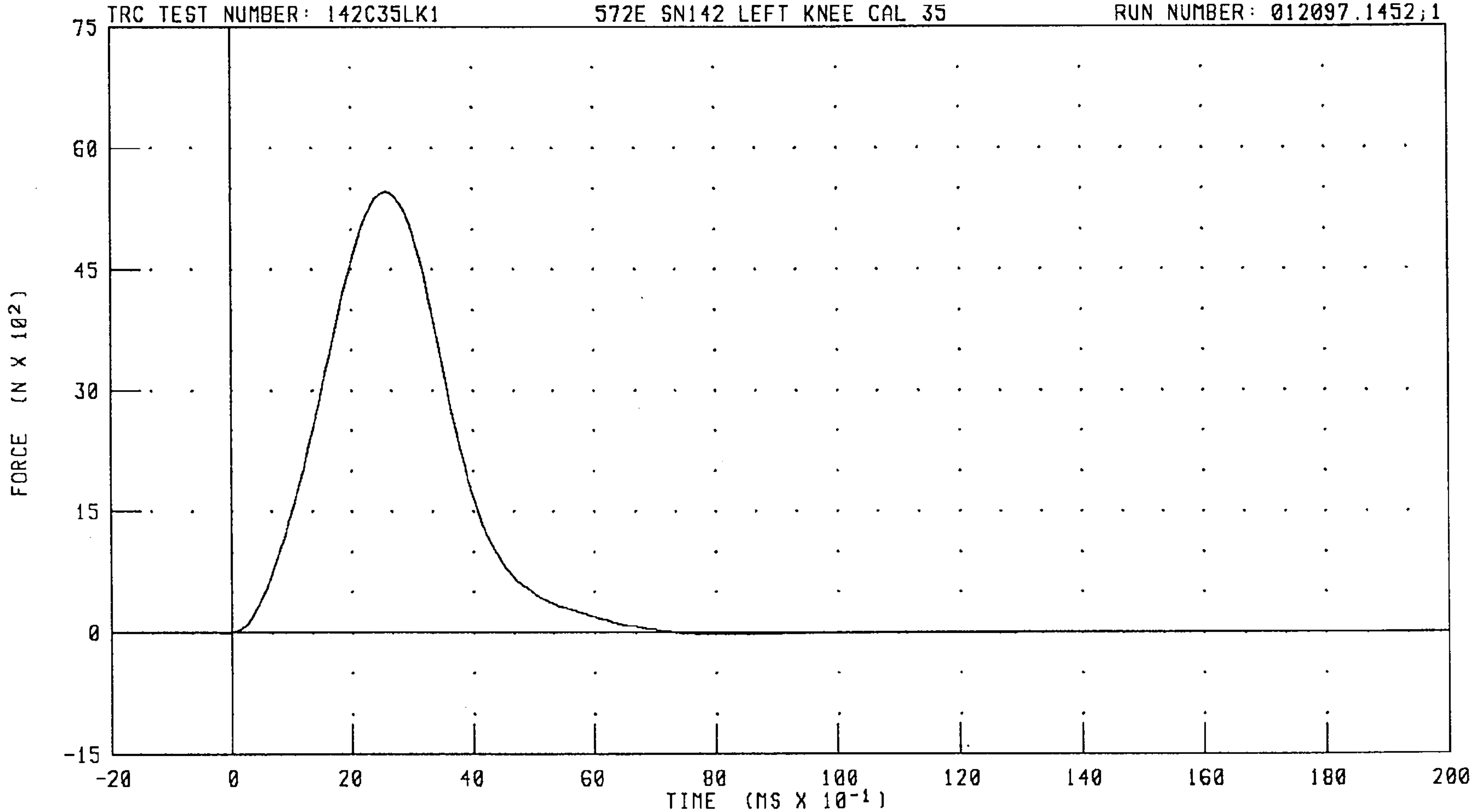


CHANNEL: PENXG FILTER: CH. CLASS 600

PEAK DATA: 111.55 G @ 2.56 MS; -0.53 G @ 7.92 MS

PART 572-E HYBRID III LEFT KNEE CALIBRATION
PENDULUM FORCE (5 KG PEND.)

TRC TEST NUMBER: 142C35LK1 572E SN142 LEFT KNEE CAL 35 RUN NUMBER: 012097.1452;1



CHANNEL: PENXF FILTER: CH. CLASS 600 PEAK DATA: 5458.08 N @ 2.56 MS; -26.09 N @ 7.92 MS

961212

Pre-test Certification Data

Passenger Dummy S/N: 192

TRANSPORTATION RESEARCH CENTER INC.
HYBRID III EXTERNAL DIMENSIONS
SN 192 ALDERSON 15-JAN-97

TRC INC. TEST NO: 192C35ED1 572E SN192 EXT.DIMENSION CAL35

TEST PARAMETER	(DIMEN.)	SPECIFICATION	TEST RESULTS
LOCATION FOR CHEST CIRCUMFERENCE	(AA)	429 - 434 MM	432. MM
LOCATION FOR WAIST CIRCUMFERENCE	(BB)	226 - 231 MM	229. MM
CHEST CIRCUMFERENCE	(Y)	970 -1001 MM	980. MM
WAIST CIRCUMFERENCE	(Z)	836 - 866 MM	851. MM
CHEST DEPTH	(O)	213 - 229 MM	218. MM
H-POINT HEIGHT	(C)	84 - 89 MM	84. MM
H-POINT FROM SEATBACK	(D)	135 - 140 MM	135. MM
SKULL CAP TO BACKLINE	(H)	41 - 46 MM	43. MM
TOTAL SITTING HEIGHT	(A)	879 - 889 MM	889. MM
THIGH CLEARANCE	(F)	140 - 155 MM	150. MM
BUTTOCK KNEE LENGTH	(K)	579 - 605 MM	597. MM
BUTTOCK POPLITEAL LENGTH	(N)	452 - 478 MM	470. MM
POPLITEAL HEIGHT	(L)	429 - 455 MM	447. MM
KNEE PIVOT HEIGHT	(M)	485 - 500 MM	493. MM
FOOT LENGTH	(P)	252 - 267 MM	259. MM
FOOT BREADTH	(W)	91 - 107 MM	102. MM
SHOULDER PIVOT FROM BACKLINE	(E)	84 - 94 MM	94. MM
SHOULDER BREADTH	(V)	422 - 437 MM	429. MM
SHOULDER PIVOT HEIGHT	(B)	506 - 521 MM	516. MM
ELBOW REST HEIGHT	(J)	191 - 211 MM	211. MM
SHOULDER-ELBOW LENGTH	(I)	330 - 345 MM	345. MM
BACK OF ELBOW TO WRIST PIVOT	(G)	290 - 305 MM	290. MM

DUMMY MEETS SPECIFICATIONS
TECHNICIAN Richard LeVan RUN NUMBER: 112196.1005

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

HYBRID III 22-NOV-96

TRC INC. TEST NO: 192C34HD1 572E SN192 HEAD DROP CAL 34

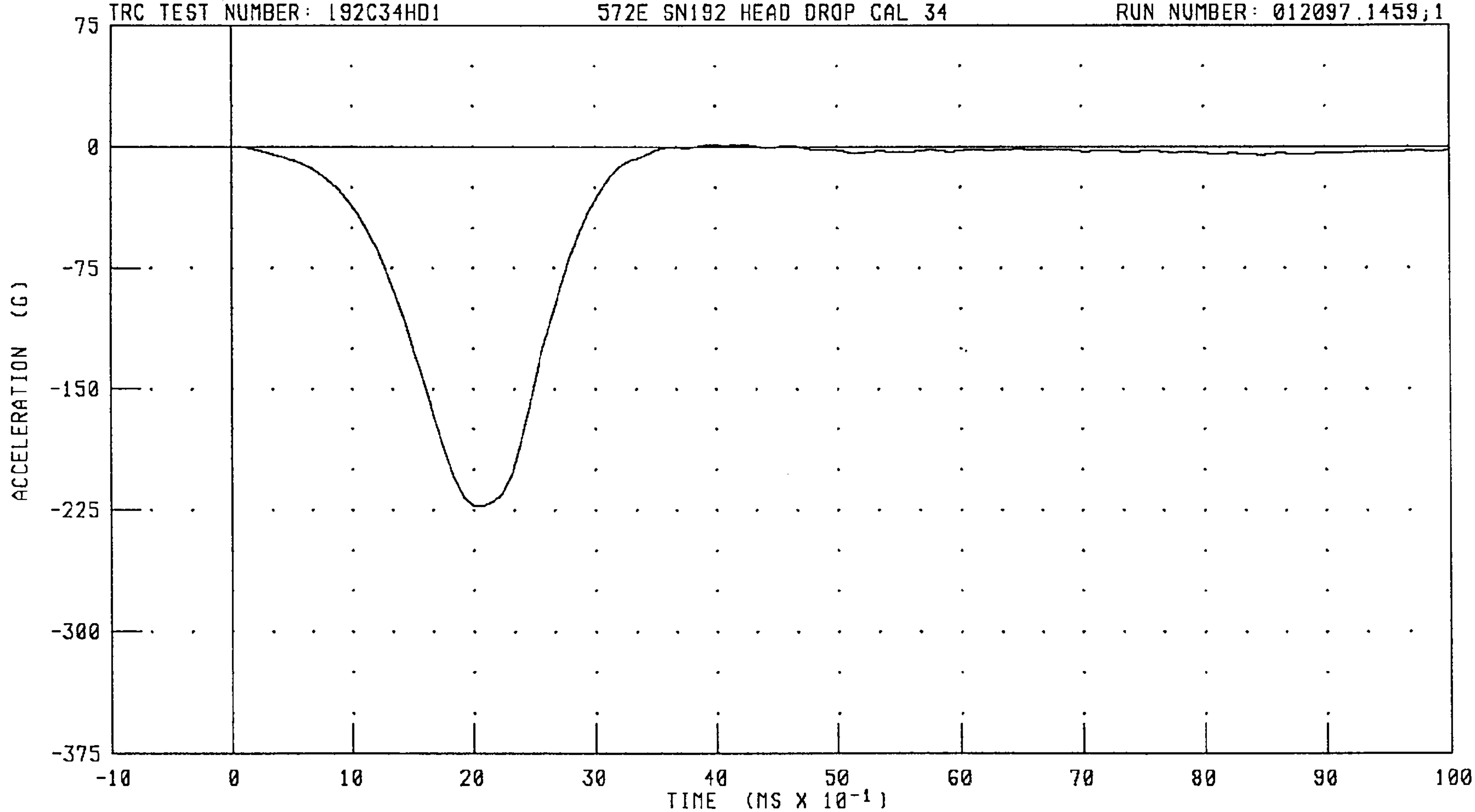
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	30.0 %
PEAK RESULTANT ACCELERATION	225 - 275 G	256.79 G
PEAK LATERAL ACCELERATION	15 G MAX	6.49 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard LeVan RUN NUMBER: 112296.1248;1

PART 572-E HYBRID III HEAD CALIBRATION
HEAD ACCELERATION X AXIS

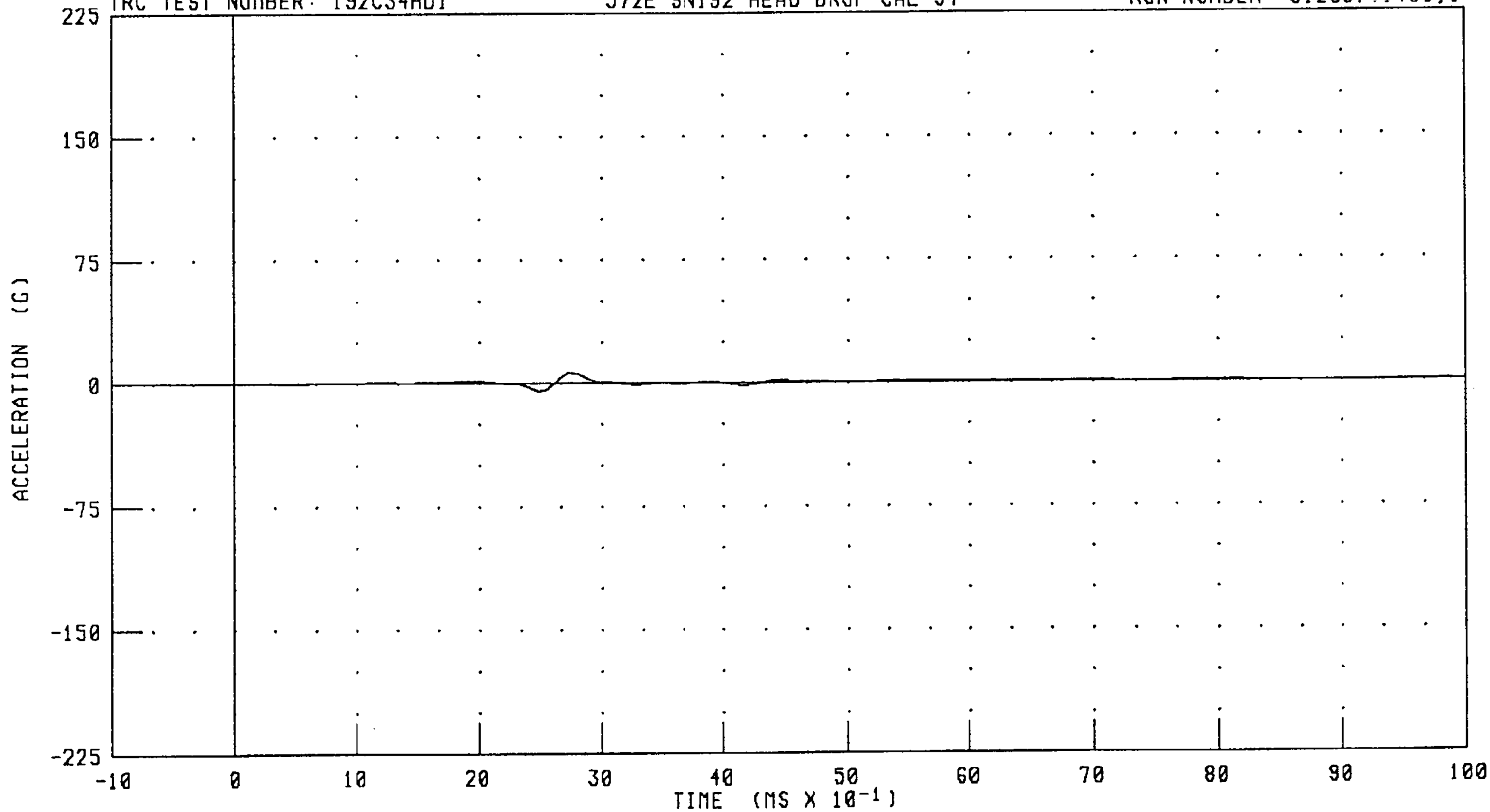
TRC TEST NUMBER: 192C34HD1 572E SN192 HEAD DROP CAL 34 RUN NUMBER: 012097.1459;1



CHANNEL: HEDXG FILTER: CH. CLASS 1000 PEAK DATA: 1.40 G @ 3.92 MS; -222.59 G @ 2.00 MS

PART 572-E HYBRID III HEAD CALIBRATION
HEAD ACCELERATION Y AXIS

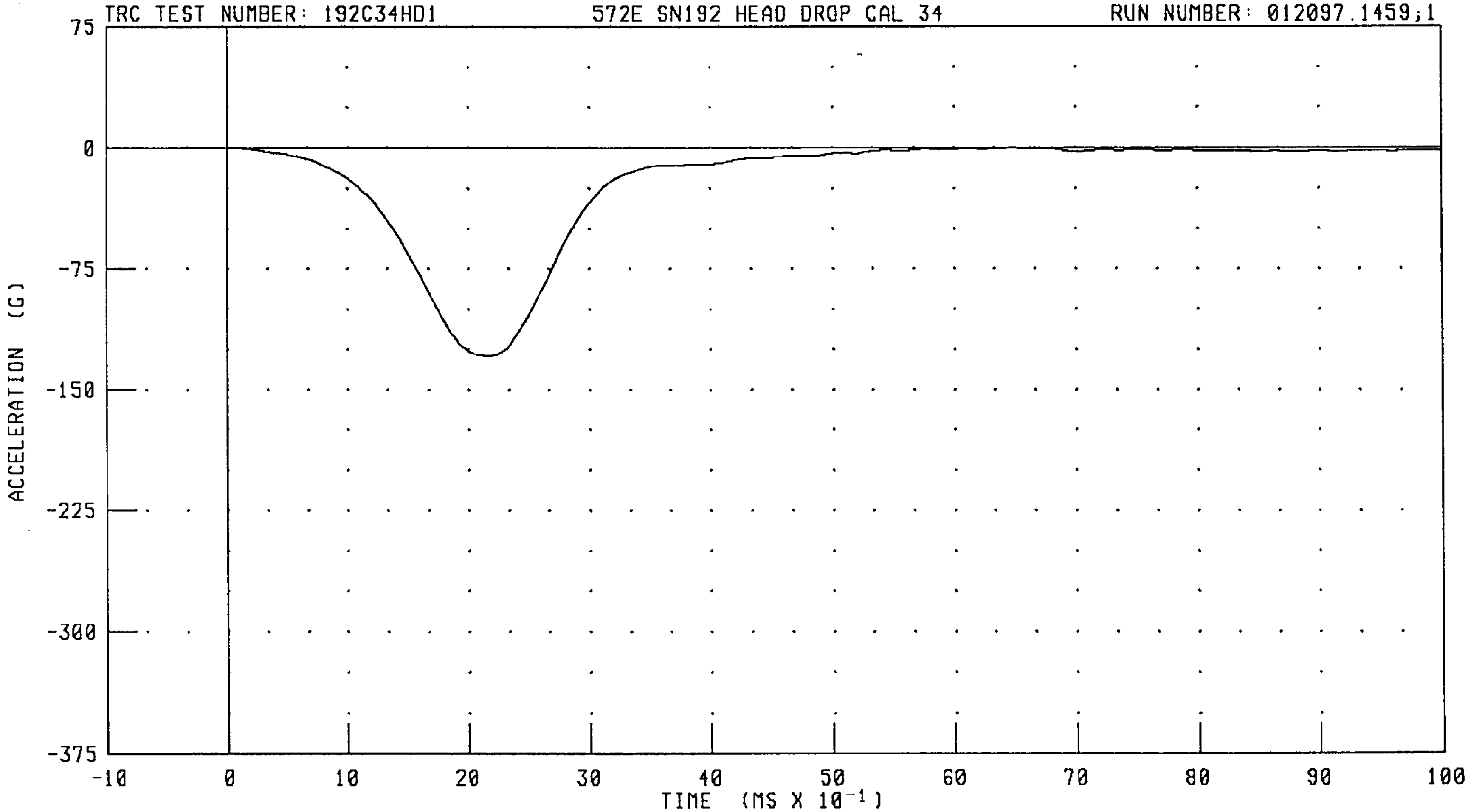
TRC TEST NUMBER: 192C34HD1 572E SN192 HEAD DROP CAL 34 RUN NUMBER: 012097.1459;1



CHANNEL: HEDYG FILTER: CH. CLASS 1000 PEAK DATA: 6.50 G @ 2.72 MS; -5.20 G @ 2.48 MS

PART 572-E HYBRID III HEAD CALIBRATION
HEAD ACCELERATION Z AXIS

TRC TEST NUMBER: 192C34HD1   572E SN192 HEAD DROP CAL 34   RUN NUMBER: 012097.1459;1



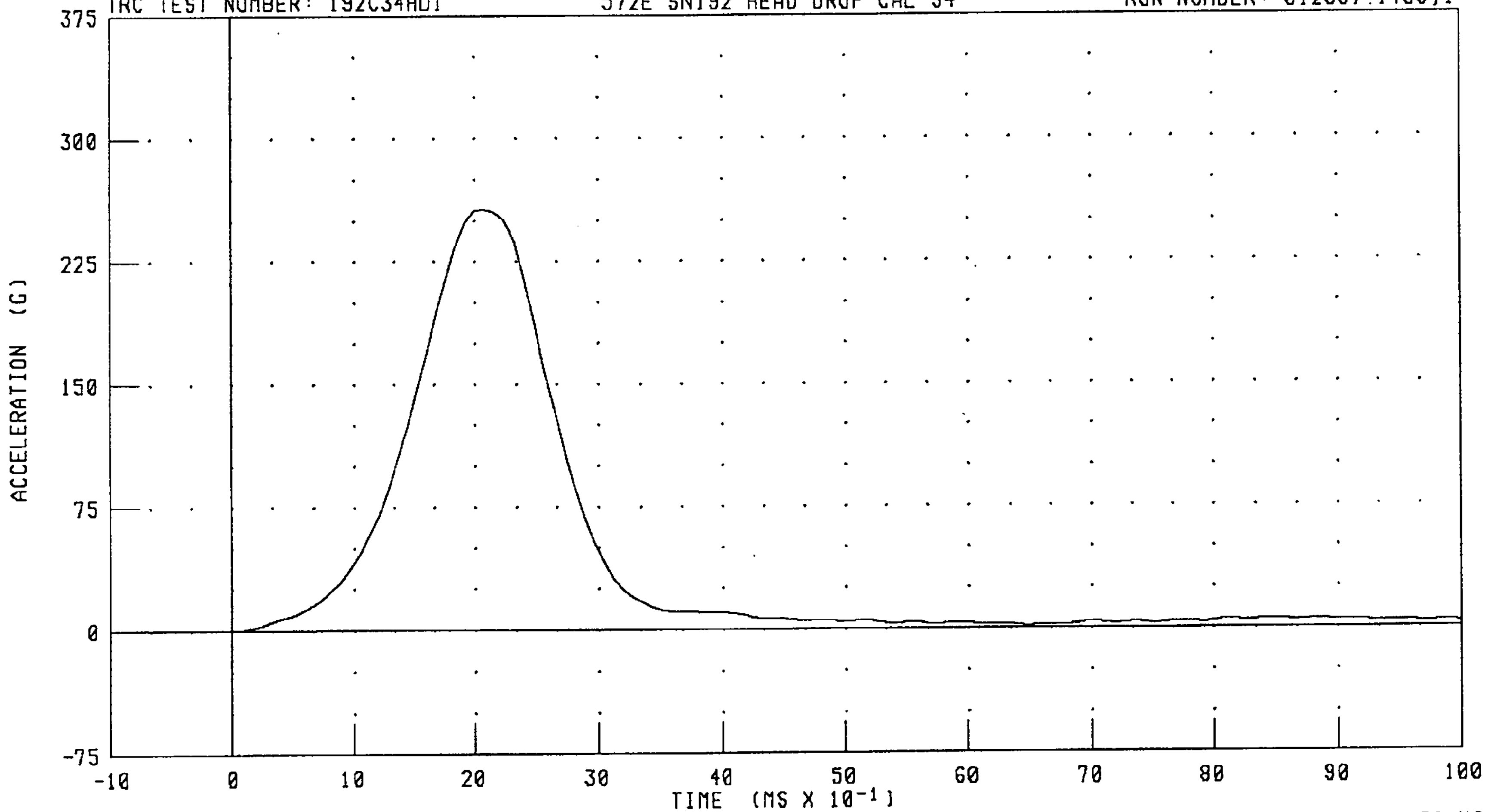
CHANNEL: HEDZG   FILTER: CH. CLASS 1000   PEAK DATA: 0.01 G @ 0.00 MS; -129.18 G @ 2.16 MS

961212

PART 572-E HYBRID III HEAD CALIBRATION
HEAD RESULTANT ACCELERATION
572E SN192 HEAD DROP CAL 34

TRC TEST NUMBER: 192C34HD1

RUN NUMBER: 012097.1459;1



CHANNEL: HEDRG FILTER: CH. CLASS 1000

PEAK DATA: 256.79 G @ 2.08 MS; 0.18 G @ 0.00 MS

961212

TRANSPORTATION RESEARCH CENTER INC.

NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

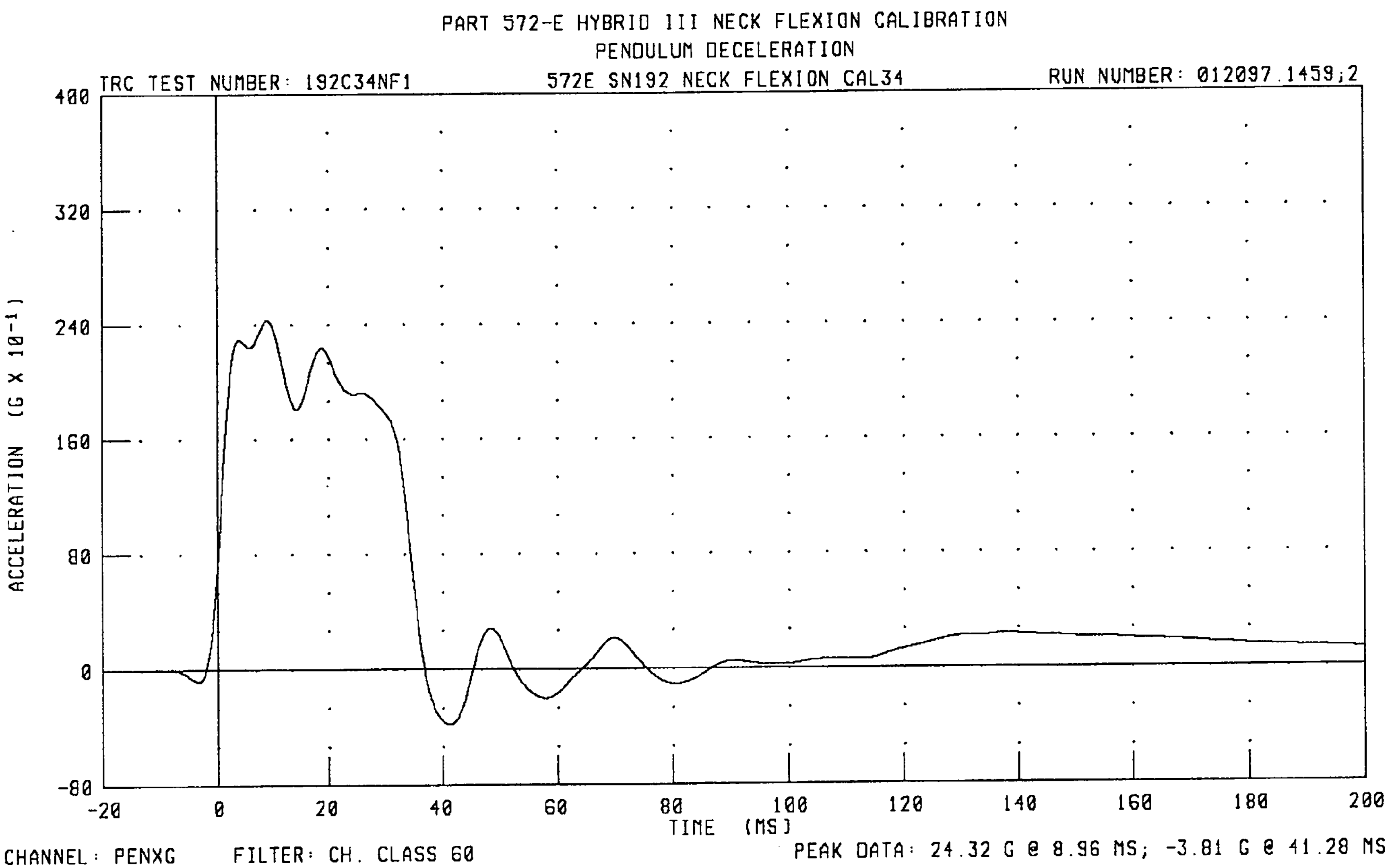
HYBRID III 26-NOV-96

TRC INC. TEST NO: 192C34NF1 572E SN192 NECK FLEXION CAL34

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	36.0 %
IMPACT VELOCITY		6.89 - 7.13 M/S	6.93 M/S
PENDULUM DECELERATION	10 MS	22.50 - 27.50 G	23.76 G
	20 MS	17.60 - 22.60 G	21.82 G
	30 MS	12.50 - 18.50 G	17.80 G
MAX PENDULUM G		29 G MAX	24.31 G
MAX PENDULUM G ABOVE 30 MS		29 G MAX	17.76 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		34 - 42 MS	35.20 MS
D PLANE ROTATION	MAX	64 - 78 DEG.	68.81 DEG.
	TIME	57 - 64 MS	57.84 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX	88.2 - 108.5 NM	101.59 NM
	TIME	47 - 58 MS	48.24 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		113 - 128 MS	113.12 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		97 - 107 MS	98.08 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard Le Van RUN NUMBER: 112696.1606;2

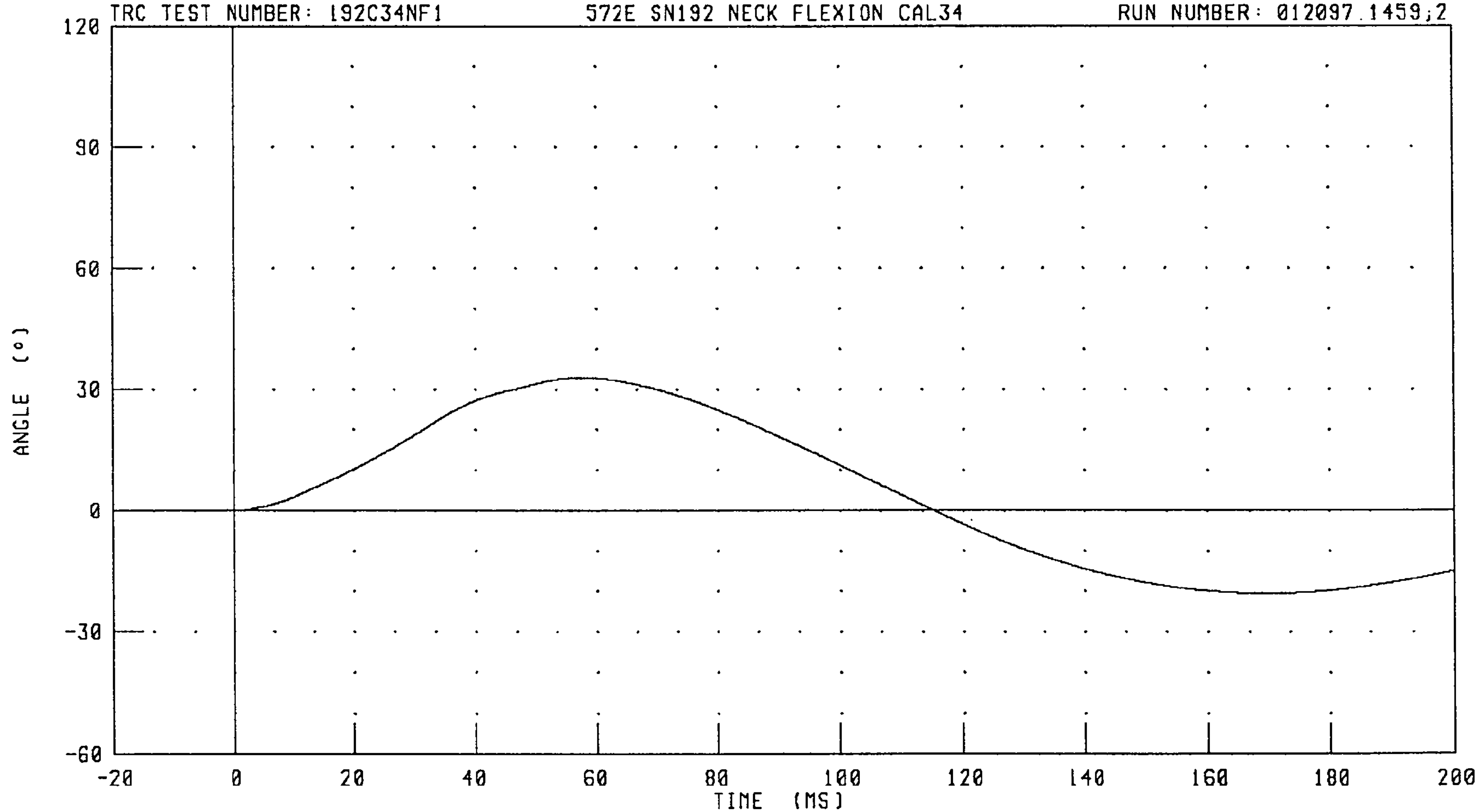


PART 572-E HYBRID III NECK FLEXION CALIBRATION
PENDULUM DECELERATION
TRC TEST NUMBER: 192C34NF1
572E SN192 NECK FLEXION CAL34
RUN NUMBER: 012097.1459;2
ACCELERATION (G X 10⁻¹)
400
320
240
160
80
0
-80
-20
0
20
40
60
80
100
120
140
160
180
200
TIME (MS)
CHANNEL: PENXG
FILTER: CH. CLASS 60
PEAK DATA: 24.32 G @ 8.96 MS; -3.81 G @ 41.28 MS

961212

PART 572-E HYBRID III NECK FLEXION CALIBRATION
ROTATION ABOUT BASE OF NECK

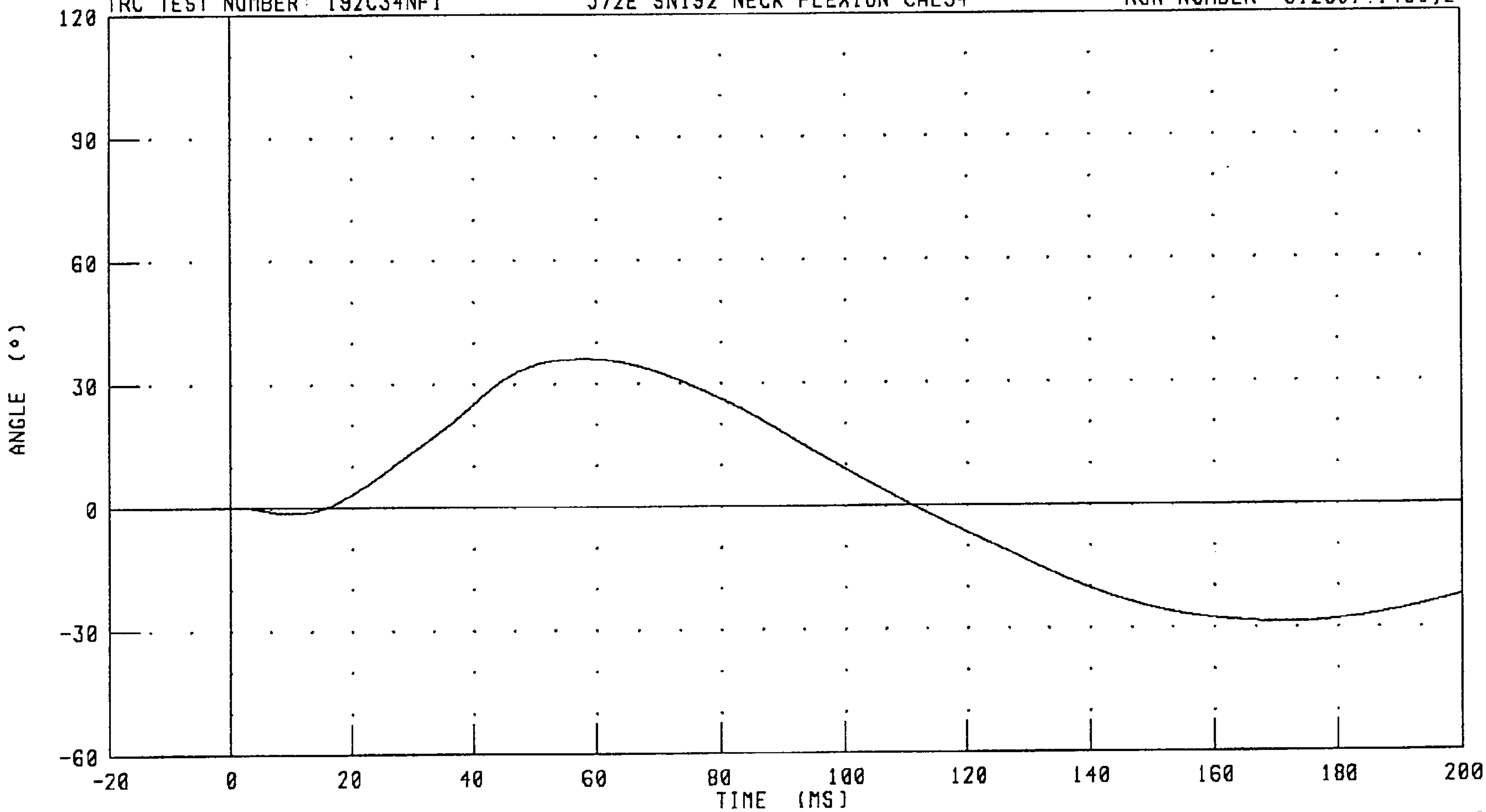
TRC TEST NUMBER: 192C34NF1   572E SN192 NECK FLEXION CAL34   RUN NUMBER: 012097.1459;2



CHANNEL: BETA   FILTER: CH. CLASS 60   PEAK DATA: 32.80 ° @ 57.68 MS; -20.53 ° @ 168.80 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION
ROTATION ABOUT OCCIPITAL CONDYLE

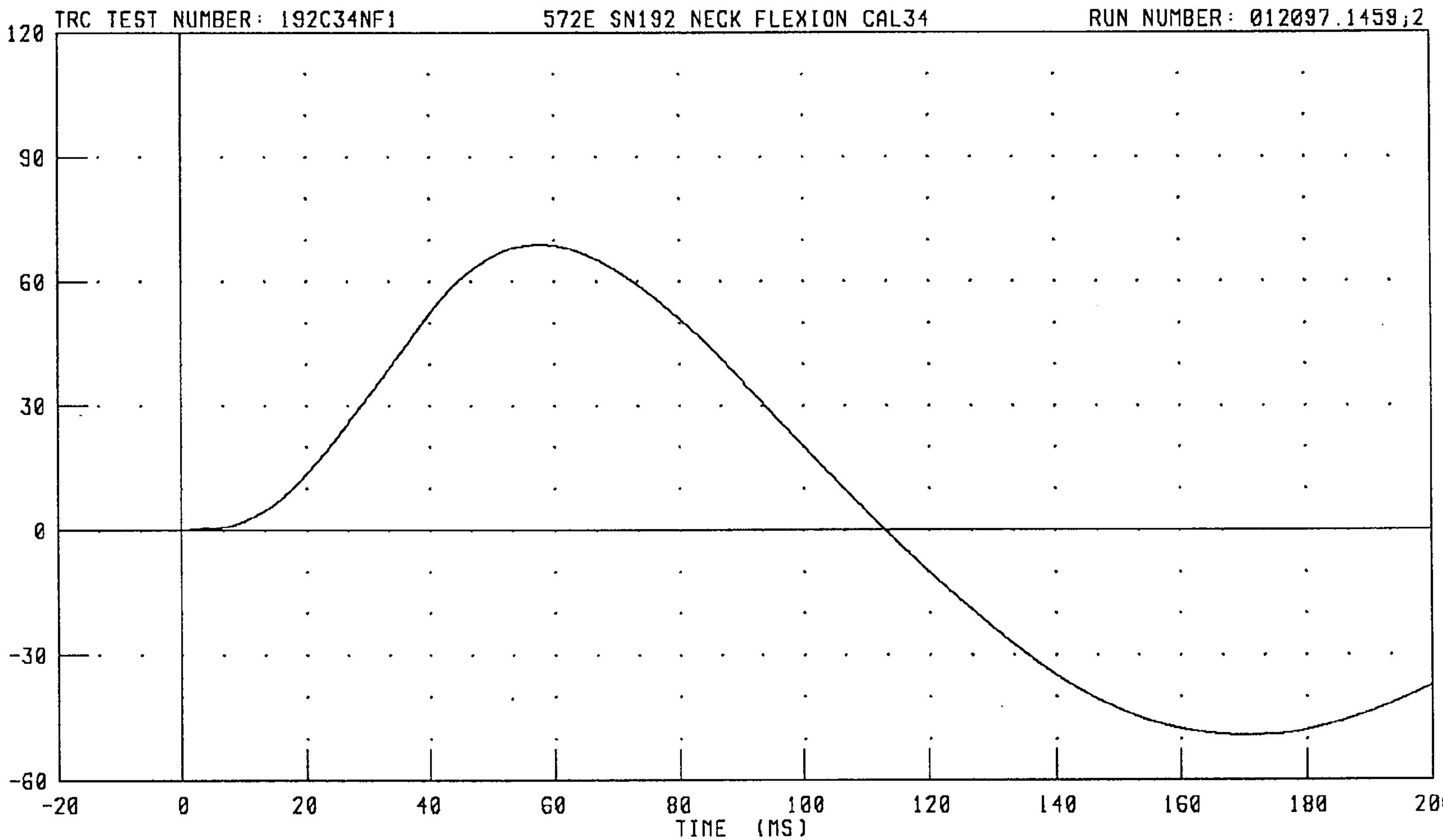
TRC TEST NUMBER: 192C34NF1 | 572E SN192 NECK FLEXION CAL34 | RUN NUMBER: 012097.1459;2



CHANNEL: THETA   FILTER: CH. CLASS 60   PEAK DATA: 36.02 ° @ 58.00 MS; -28.65 ° @ 172.08 MS

961212

PART 572-E HYBRID III NECK FLEXION CALIBRATION
TOTAL ROTATION

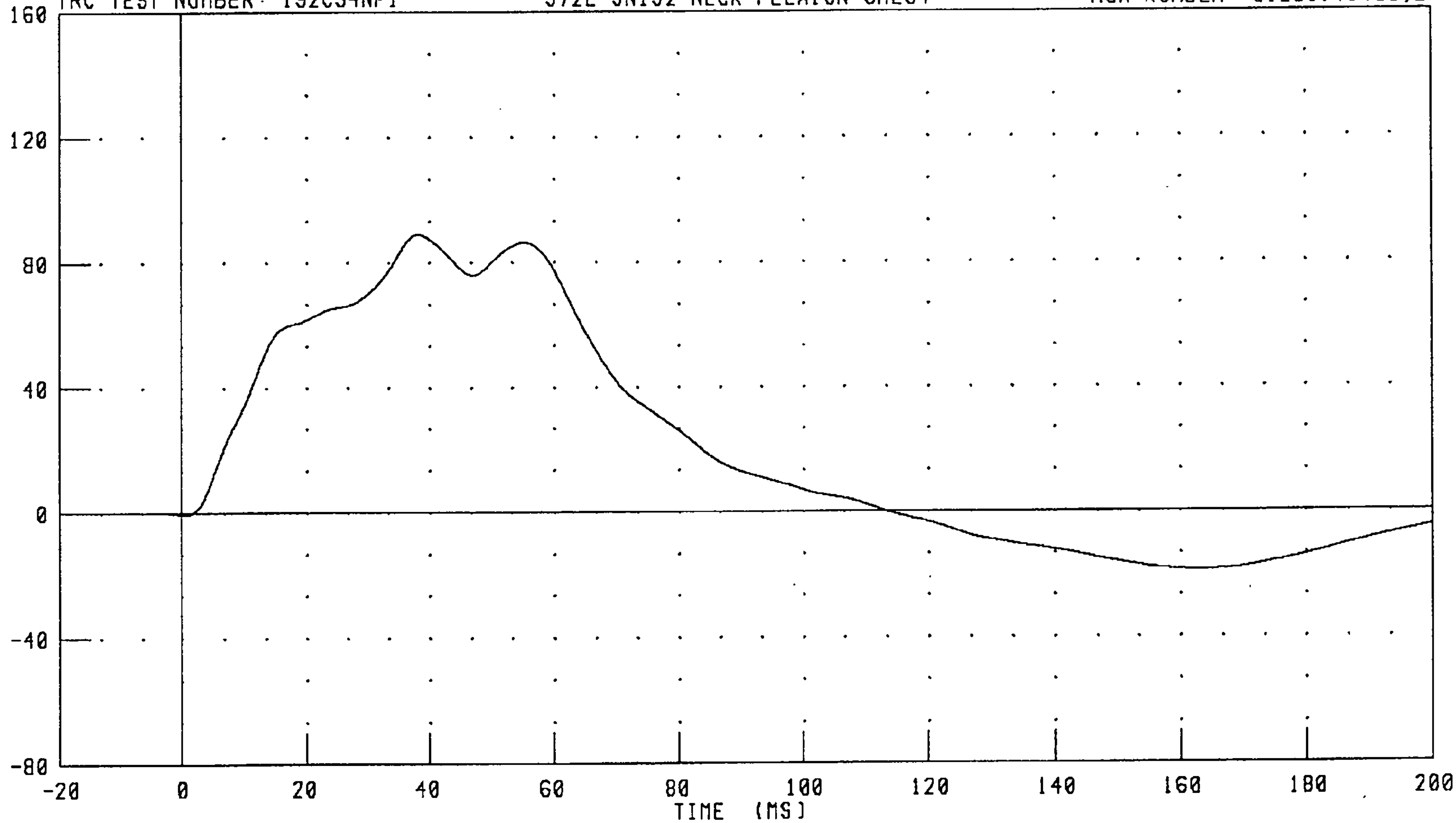


CHANNEL: TOTAN FILTER: CH. CLASS 60 PEAK DATA: 68.82 ° @ 57.84 MS; -49.16 ° @ 170.16 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION

NECK FORCE X AXIS

TRC TEST NUMBER: 192C34NF1 572E SN192 NECK FLEXION CAL34 RUN NUMBER: 012097.1459;2

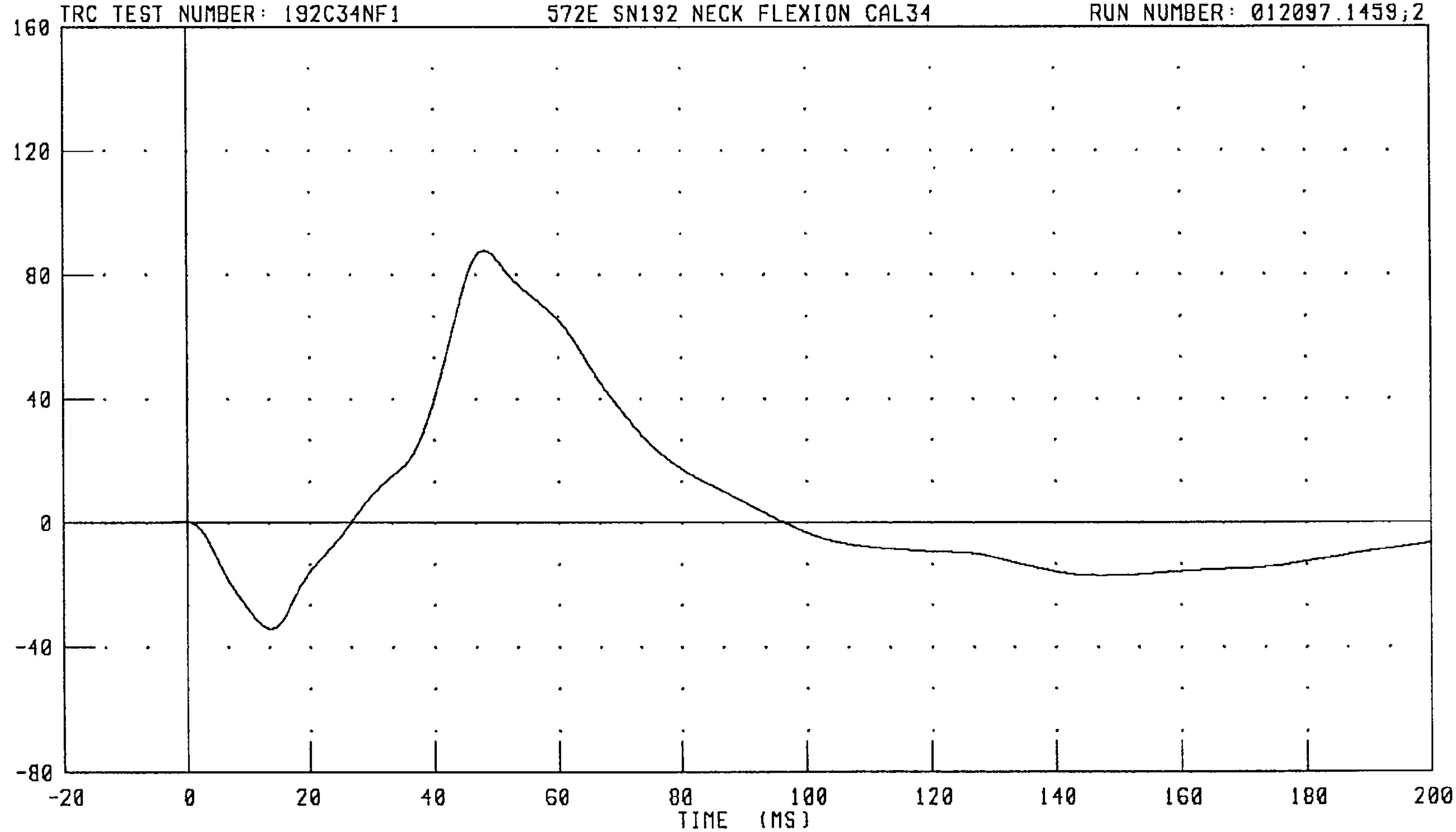


CHANNEL: NEKXF FILTER: CH. CLASS 60 PEAK DATA: 890.79 N @ 38.16 MS; -188.38 N @ 163.20 MS

961212

PART 572-E HYBRID III NECK FLEXION CALIBRATION
NECK MOMENT Y AXIS

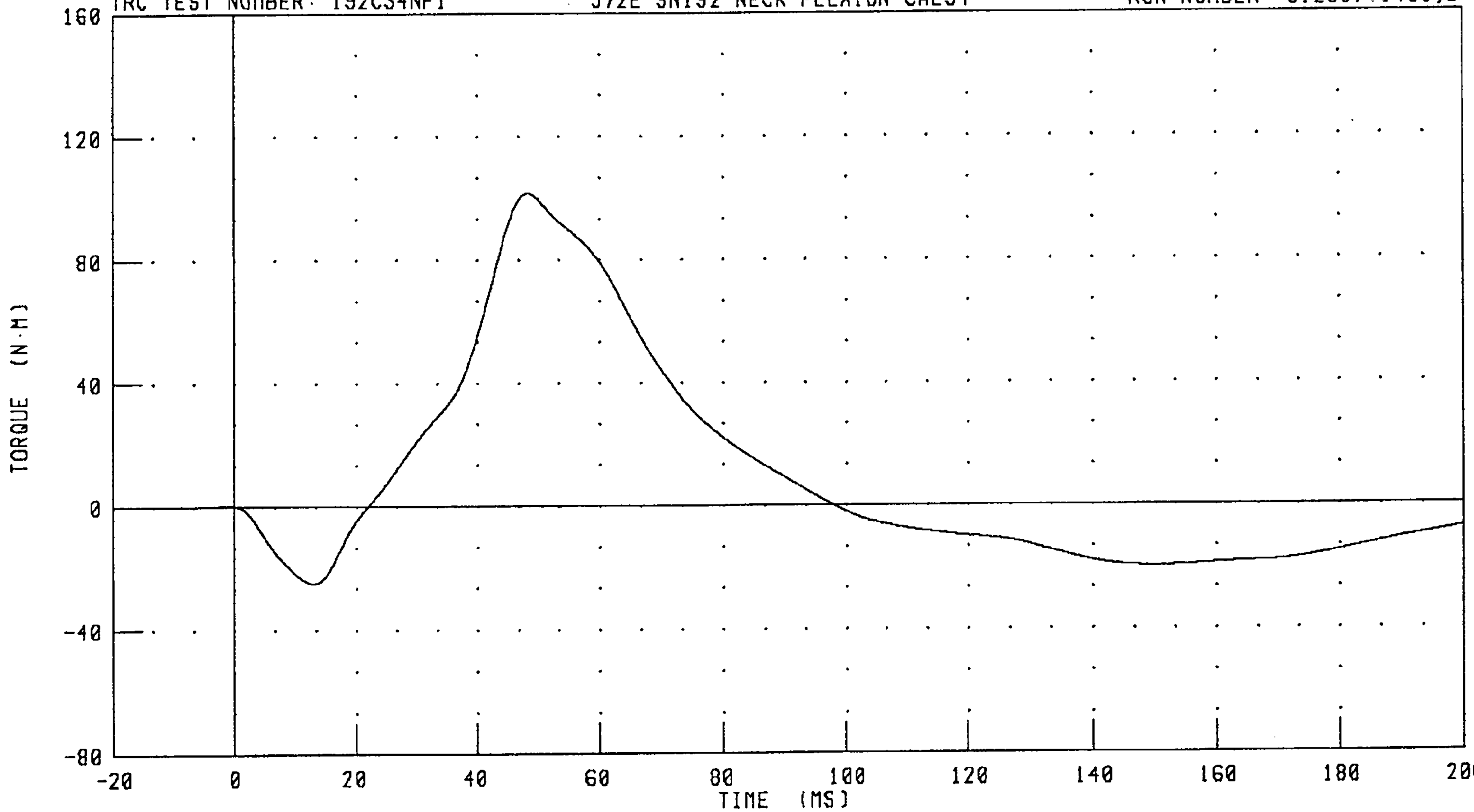
TRC TEST NUMBER: 192C34NF1 572E SN192 NECK FLEXION CAL34 RUN NUMBER: 012097.1459;2



CHANNEL: NEKYM FILTER: CH. CLASS 60 PEAK DATA: 87.95 N·M @ 48.08 MS; -34.09 N·M @ 13.68 MS

PART 572-E HYBRID III NECK FLEXION CALIBRATION
TOTAL MOMENT ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: 192C34NF1   572E SN192 NECK FLEXION CAL34   RUN NUMBER: 012097.1459;2



CHANNEL: NEKOM   FILTER: CH. CLASS 60   PEAK DATA: 101.59 N·M @ 48.24 MS; -24.94 N·M @ 12.96 MS

961212

TRANSPORTATION RESEARCH CENTER INC.

NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

HYBRID III 27-NOV-96

TRC INC. TEST NO: 192C34NE1 572E SN192 NECK EXT. CAL34

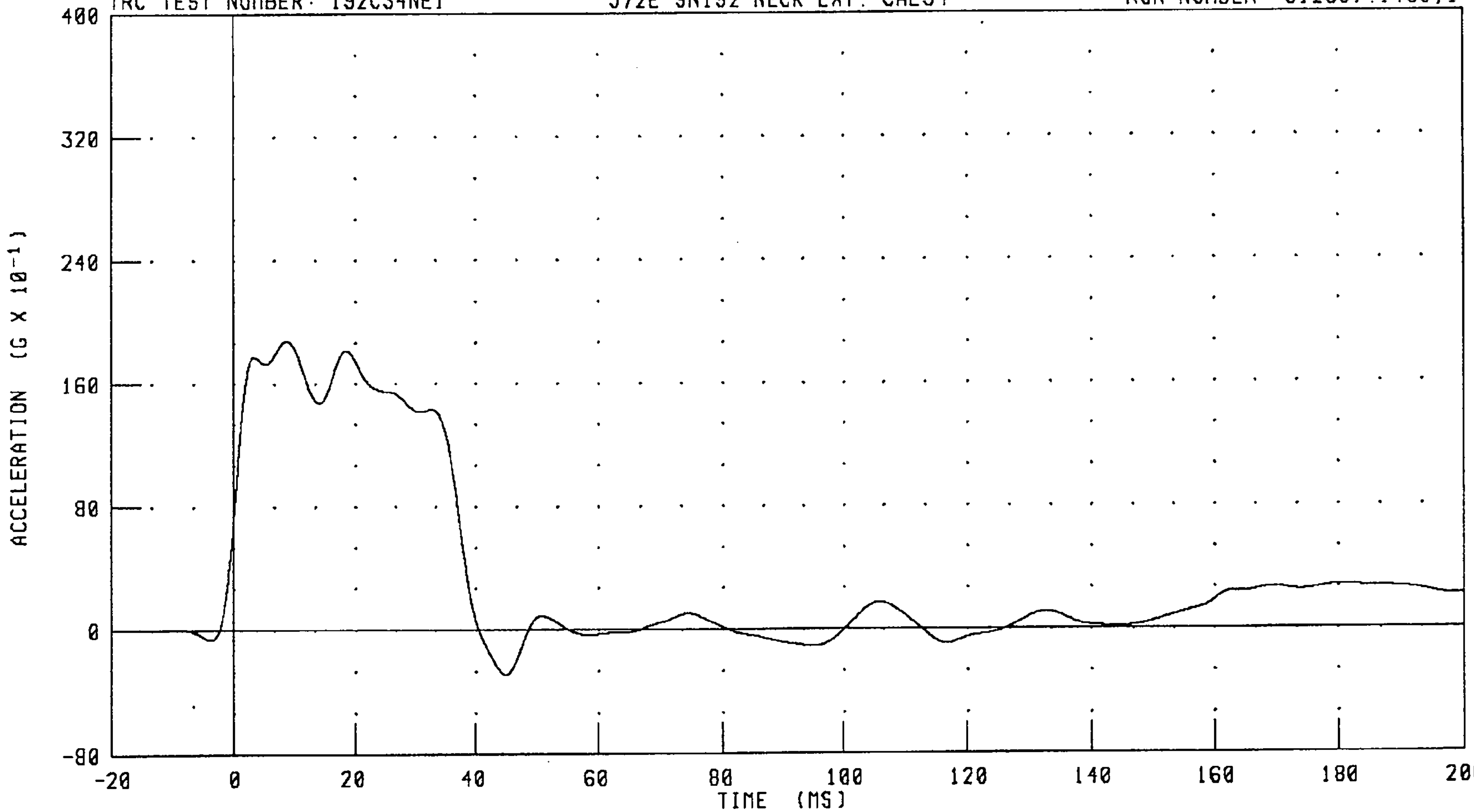
TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.6 - 22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY		10 - 70 %	28.0 %
IMPACT VELOCITY		5.95 - 6.19 M/S	6.10 M/S
PENDULUM DECELERATION	10 MS	17.20 - 21.20 G	18.26 G
	20 MS	14.00 - 19.00 G	17.47 G
	30 MS	11.00 - 16.00 G	14.21 G
MAX PENDULUM G		22 G MAX	18.77 G
MAX PENDULUM G ABOVE 30 MS		22 G MAX	14.30 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G		38 - 46 MS	38.00 MS
D PLANE ROTATION	MAX	81 - 106 DEG.	97.62 DEG.
	TIME	72 - 82 MS	75.68 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MIN	-80.0/-52.9 NM	-63.41 NM
	TIME	65 - 79 MS	70.48 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		147 - 174 MS	156.64 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		120 - 148 MS	137.92 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard LeVan RUN NUMBER: 112796.0906;1

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
PENDULUM DECELERATION

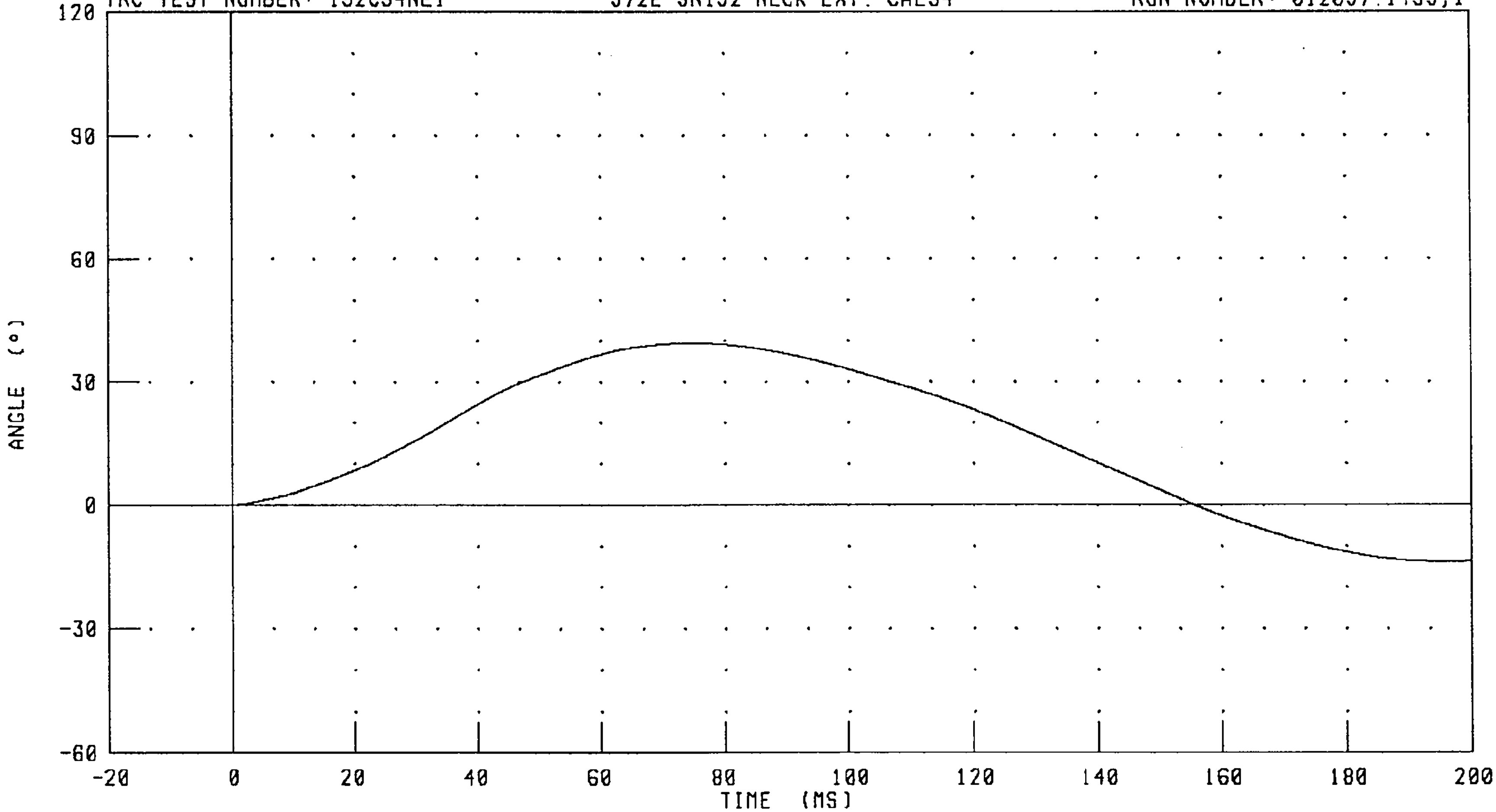
TRC TEST NUMBER: 192C34NE1 572E SN192 NECK EXT. CAL34 RUN NUMBER: 012097.1459;1



CHANNEL: PENXG FILTER: CH. CLASS 60 PEAK DATA: 18.78 G @ 8.72 MS; -2.87 G @ 44.96 MS

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
ROTATION ABOUT BASE OF NECK

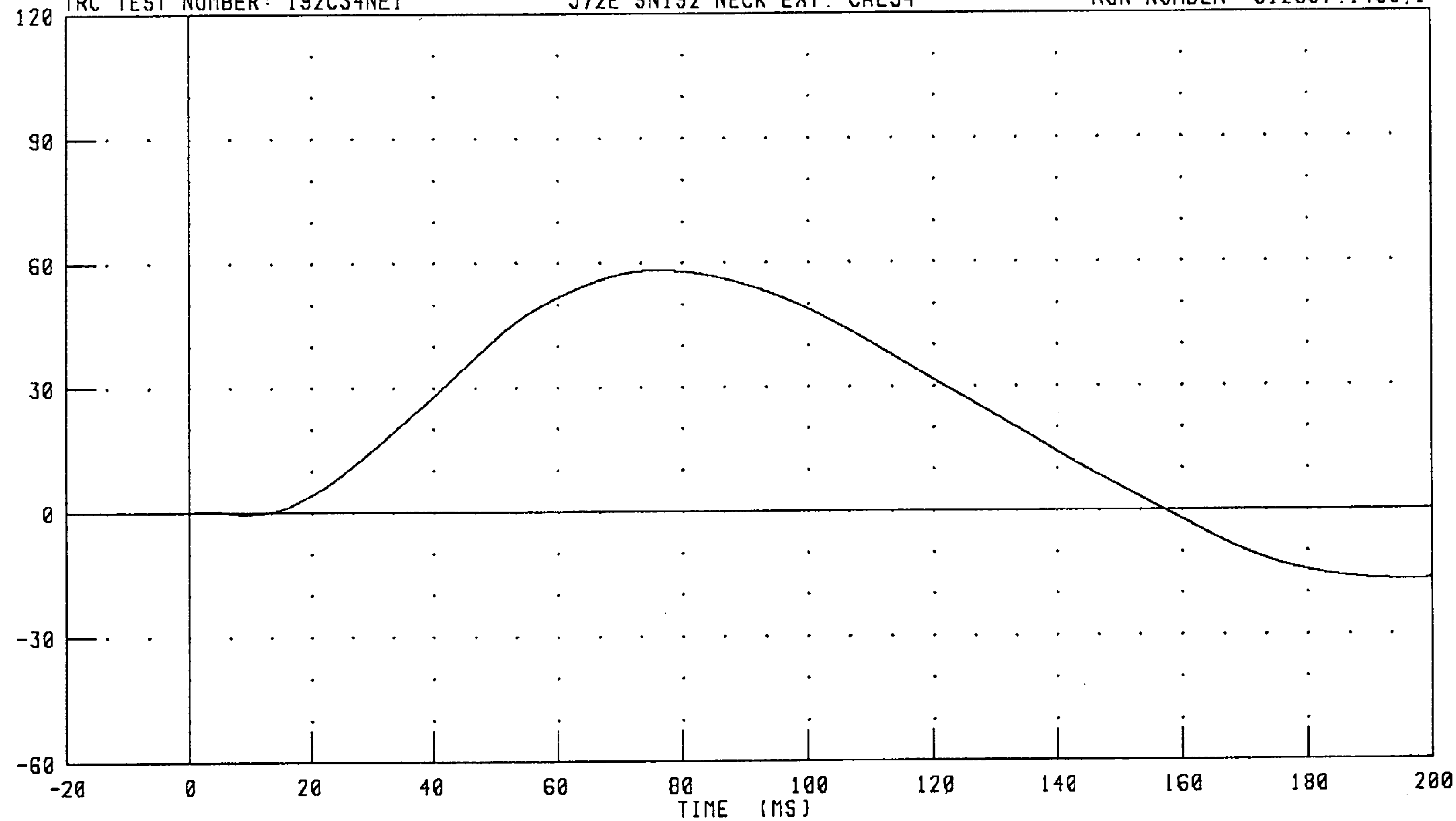
TRC TEST NUMBER: 192C34NE1 572E SN192 NECK EXT. CAL34 RUN NUMBER: 012097.1459;1



CHANNEL: BETA FILTER: CH. CLASS 60 PEAK DATA: 39.42 ° @ 74.64 MS; -13.86 ° @ 195.60 MS

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
ROTATION ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: 192C34NE1 572E SN192 NECK EXT. CAL34 RUN NUMBER: 012097.1459.1

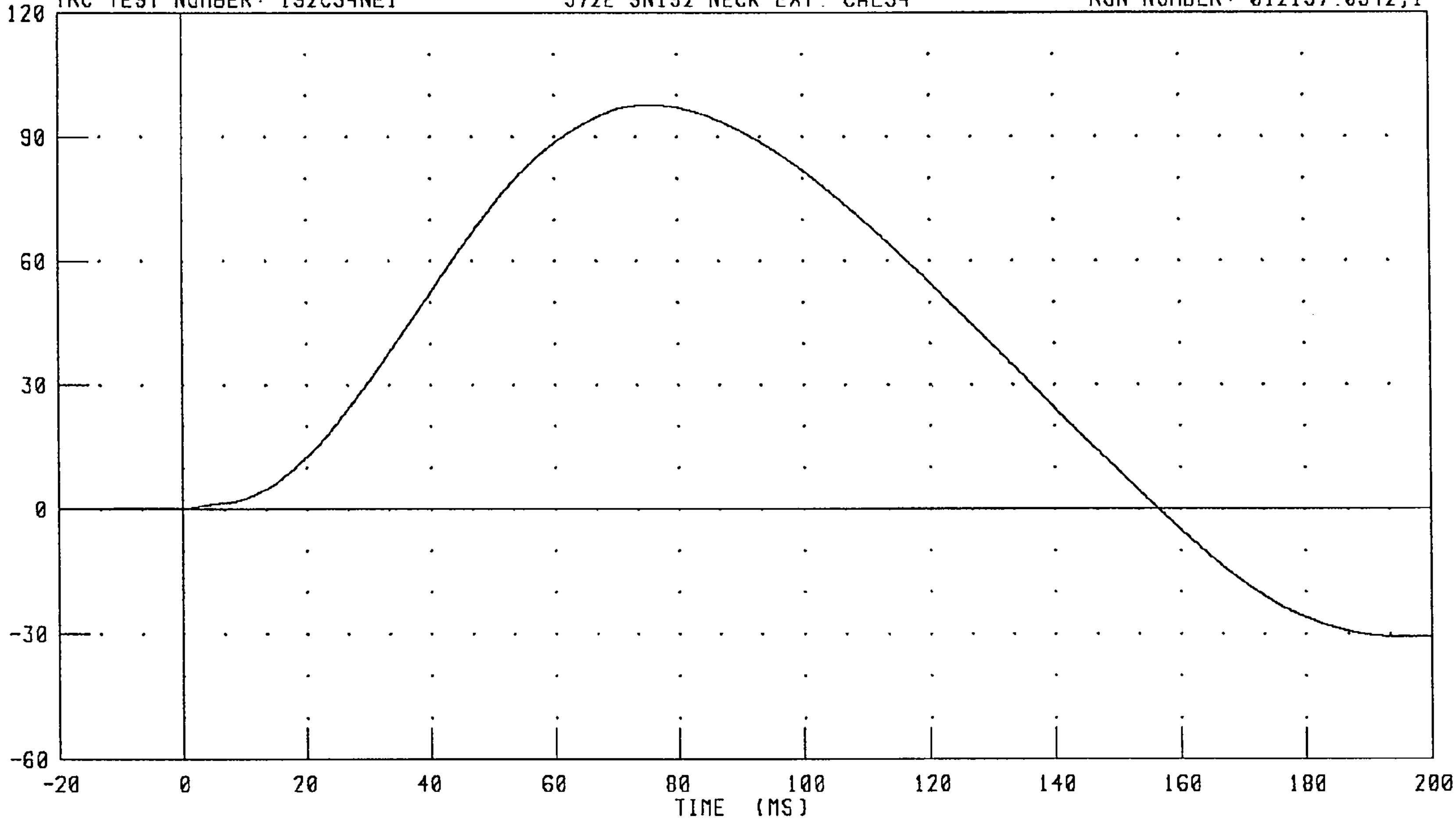


CHANNEL: THETA FILTER: CH. CLASS 60 PEAK DATA: 58.22 ° @ 76.16 MS; -16.89 ° @ 195.60 MS

961212

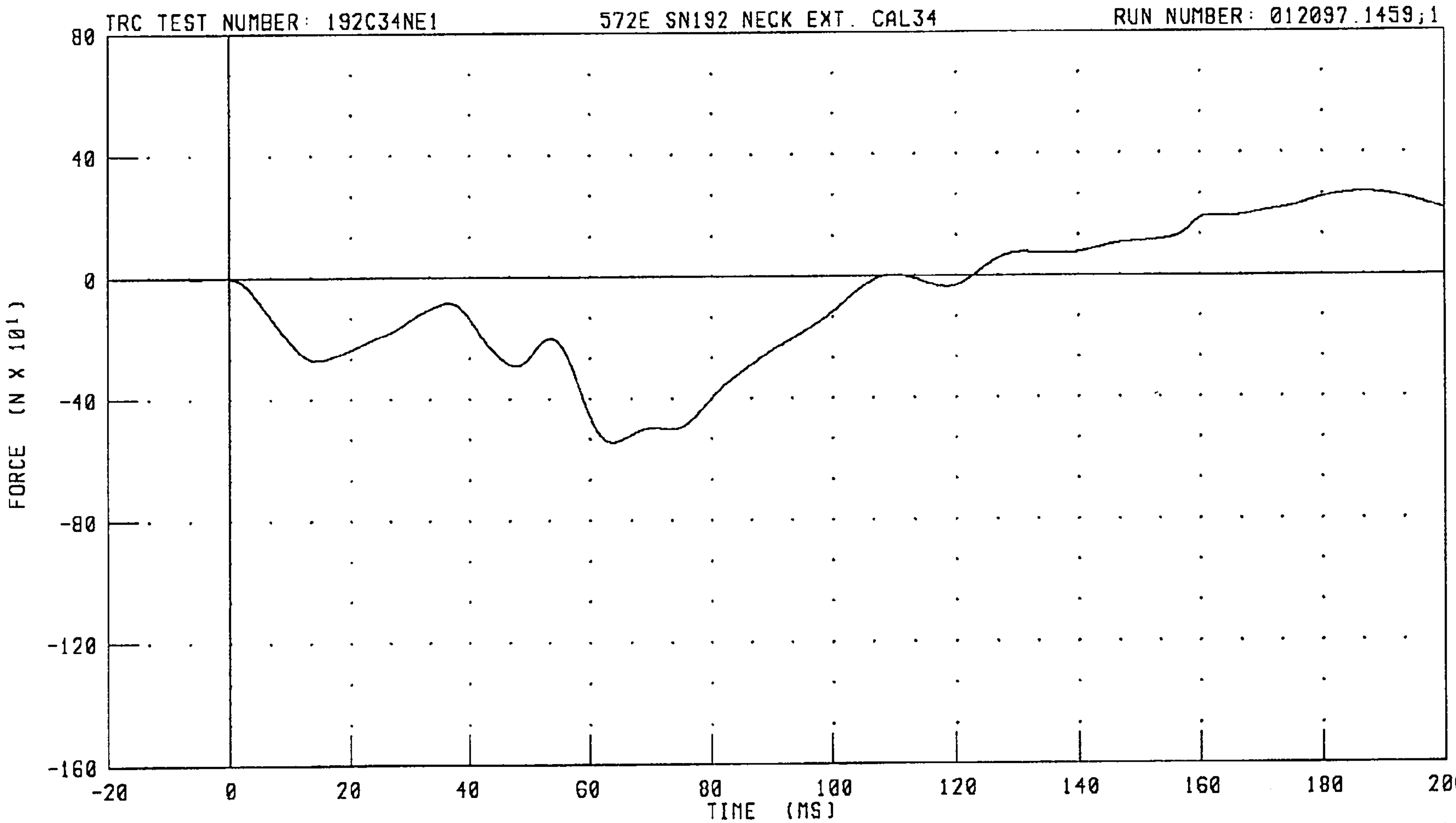
PART 572-E HYBRID III NECK EXTENSION CALIBRATION
TOTAL ROTATION

TRC TEST NUMBER: 192C34NE1 572E SN192 NECK EXT. CAL34 RUN NUMBER: 012197.0942;1



CHANNEL: TOTAN FILTER: CH. CLASS 60 PEAK DATA: 97.62 ° @ 75.68 MS; -30.75 ° @ 195.60 MS

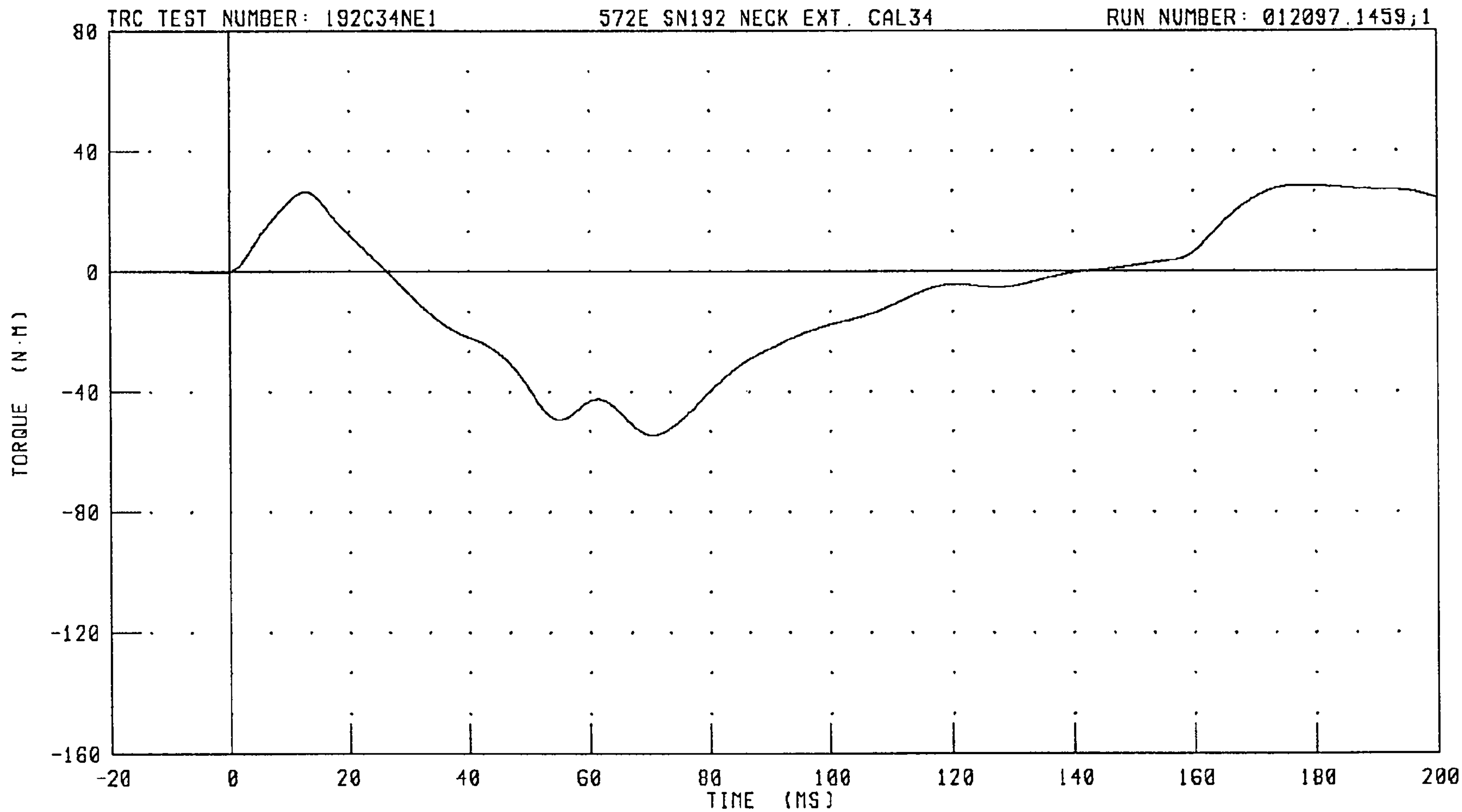
PART 572-E HYBRID III NECK EXTENSION CALIBRATION
NECK FORCE X AXIS



CHANNEL: NEKXF FILTER: CH. CLASS 60 PEAK DATA: 270.34 N @ 186.88 MS; -544.41 N @ 63.68 MS

961212

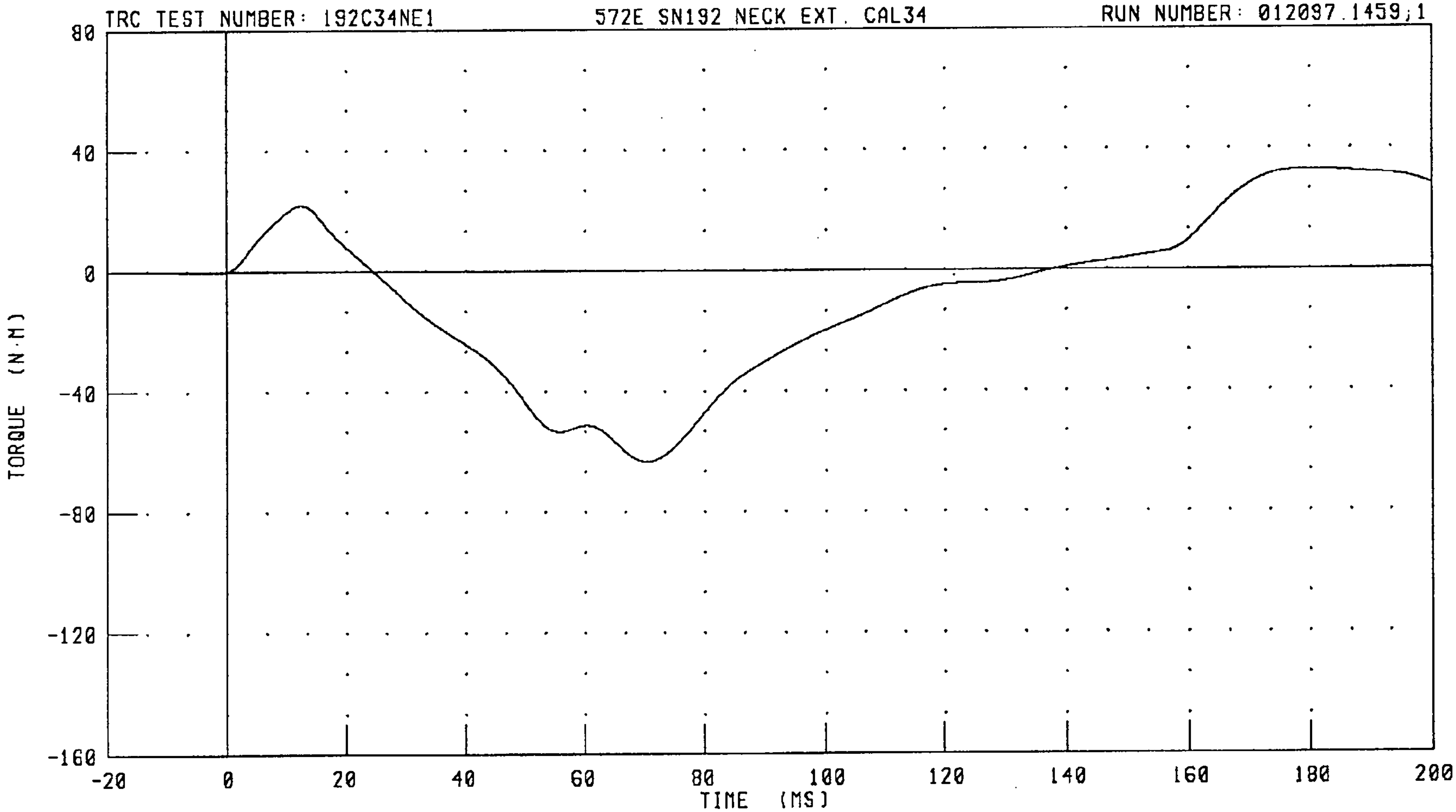
PART 572-E HYBRID III NECK EXTENSION CALIBRATION
NECK MOMENT Y AXIS



CHANNEL: NEKYM FILTER: CH. CLASS 60 PEAK DATA: 28.55 N·M @ 177.92 MS; -54.56 N·M @ 70.48 MS

PART 572-E HYBRID III NECK EXTENSION CALIBRATION
TOTAL MOMENT ABOUT OCCIPITAL CONDYLE

TRC TEST NUMBER: 192C34NE1   572E SN192 NECK EXT. CAL34   RUN NUMBER: 012097.1459;1



CHANNEL: NEKOM   FILTER: CH. CLASS 60   PEAK DATA: 32.96 N·M @ 180.32 MS; -63.41 N·M @ 70.48 MS

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III 27-NOV-96

TRC INC. TEST NO: 192C34TH1 572E SN 192 H.S.THORAX CAL 34

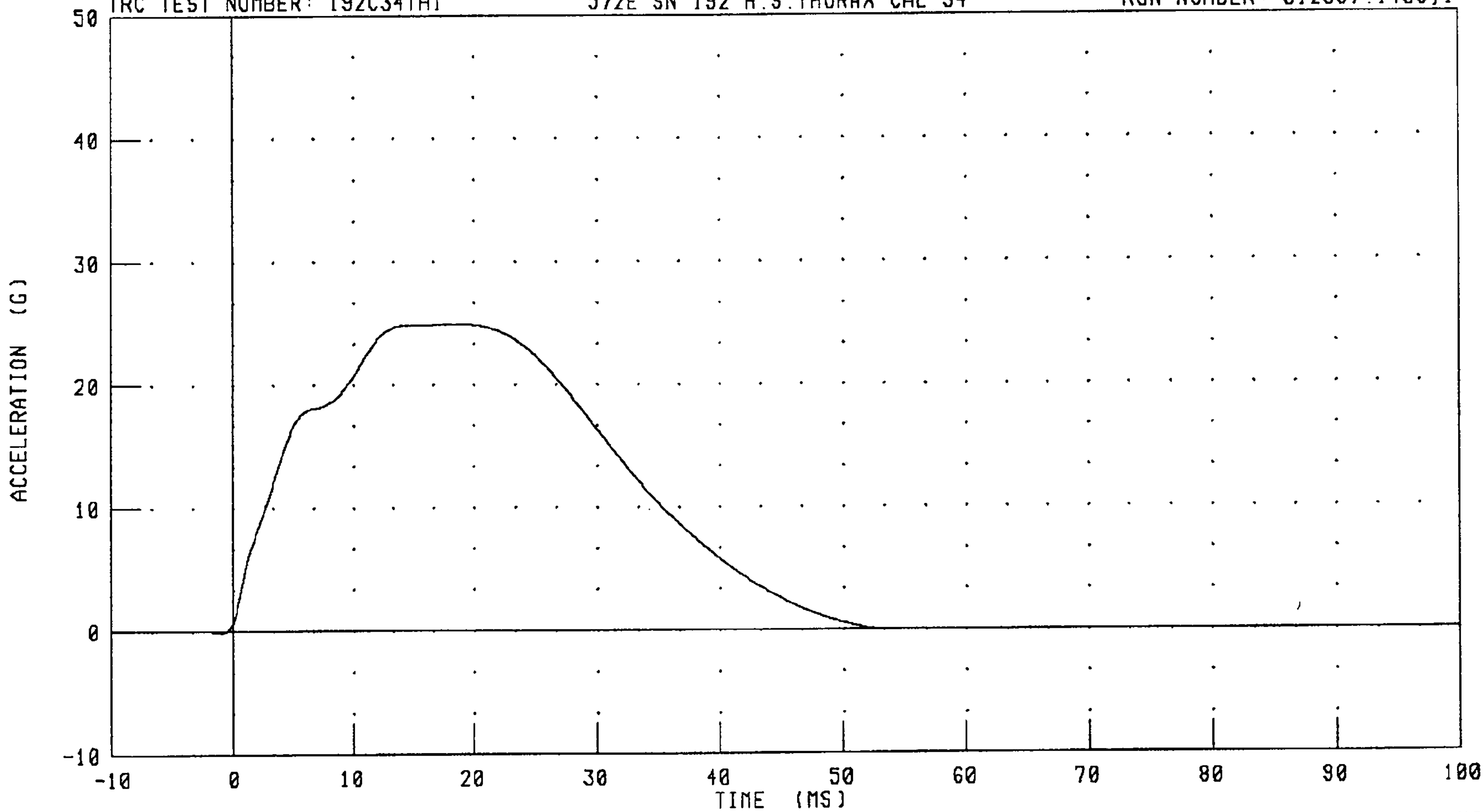
TEST PARAMETER	HIGH SPEED TEST SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6-22.2 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	28.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.71 M/S
MAXIMUM DEFLECTION	63.5 - 72.6 MM	64.1 MM
MAXIMUM RESISTIVE FORCE	5159 - 5894 N	5716. N
INTERNAL HYSTERESIS	69% - 85%	74.0%

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard Le Van RUN NUMBER: 112796.1134;1

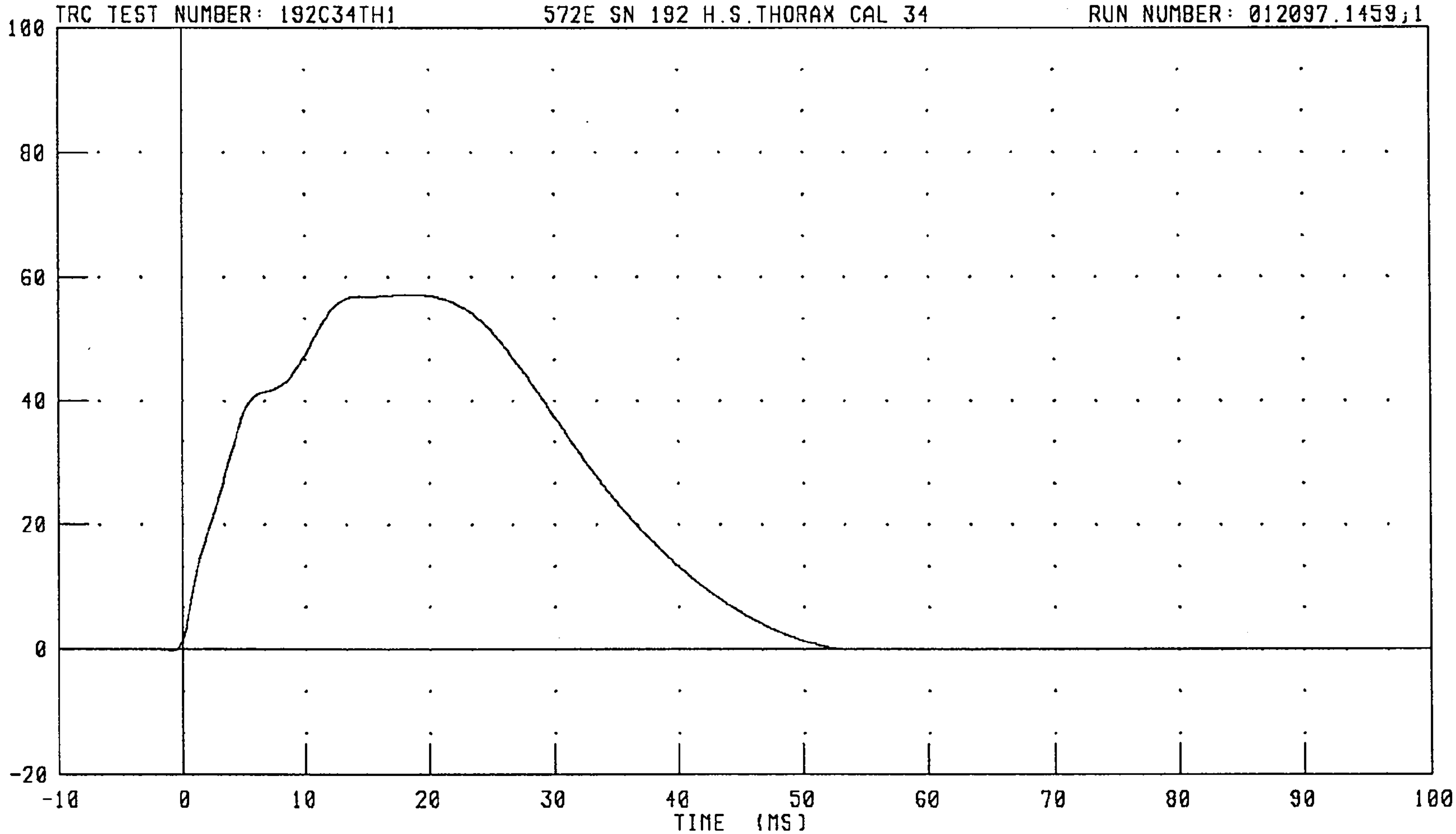
PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM DECELERATION

TRC TEST NUMBER: 192C34TH1 572E SN 192 H.S.THORAX CAL 34 RUN NUMBER: 012097.1459;1



CHANNEL: PENXG FILTER: CH. CLASS 180 PEAK DATA: 24.96 G @ 18.56 MS; -0.10 G @ -0.96 MS

PART 572-E HYBRID III THORAX CALIBRATION
PENDULUM FORCE

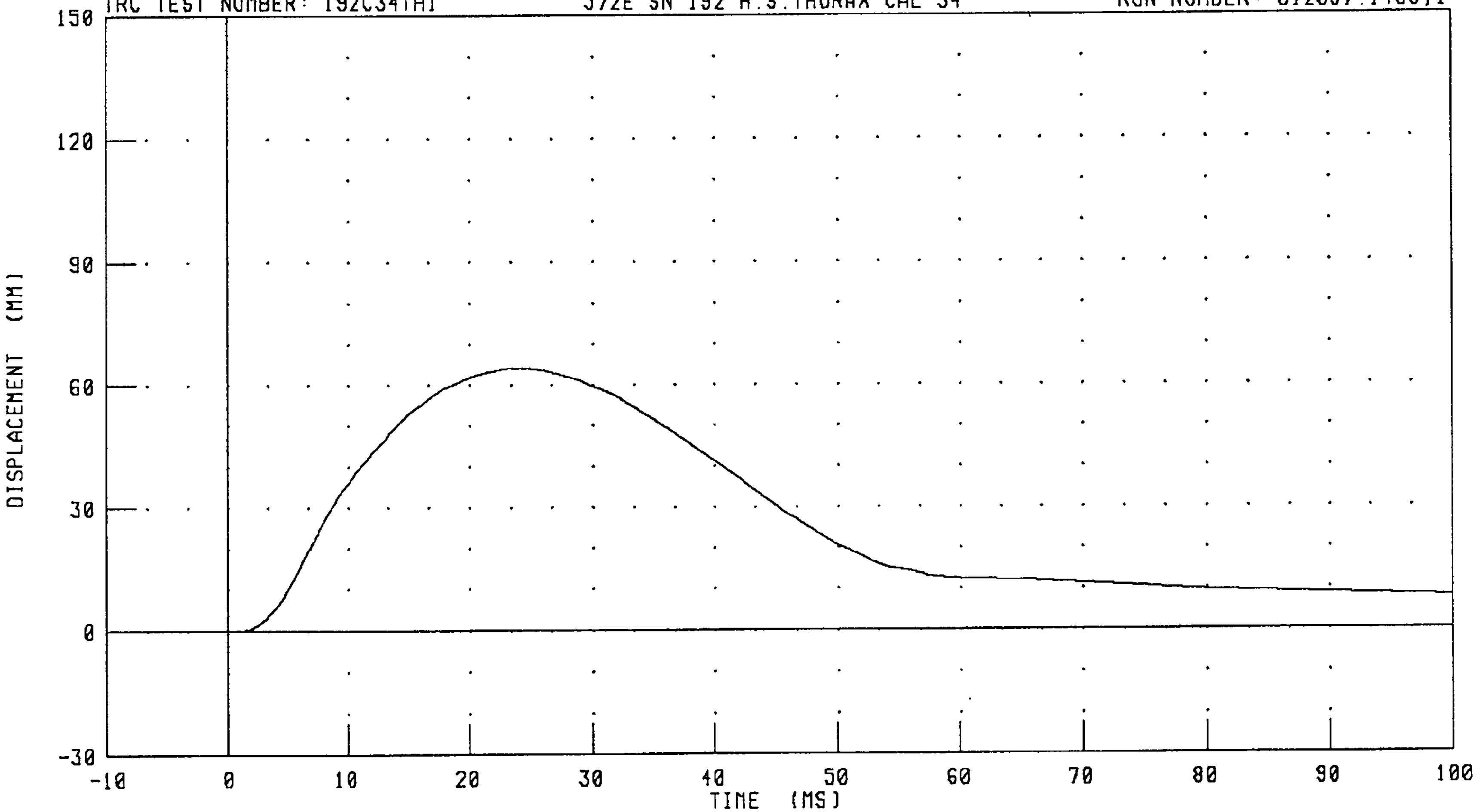


CHANNEL: PENXF FILTER: CH. CLASS 180 PEAK DATA: 5717.00 N @ 18.56 MS; -23.91 N @ -0.96 MS

961212

PART 572-E HYBRID III THORAX CALIBRATION
STERNUM DISPLACEMENT

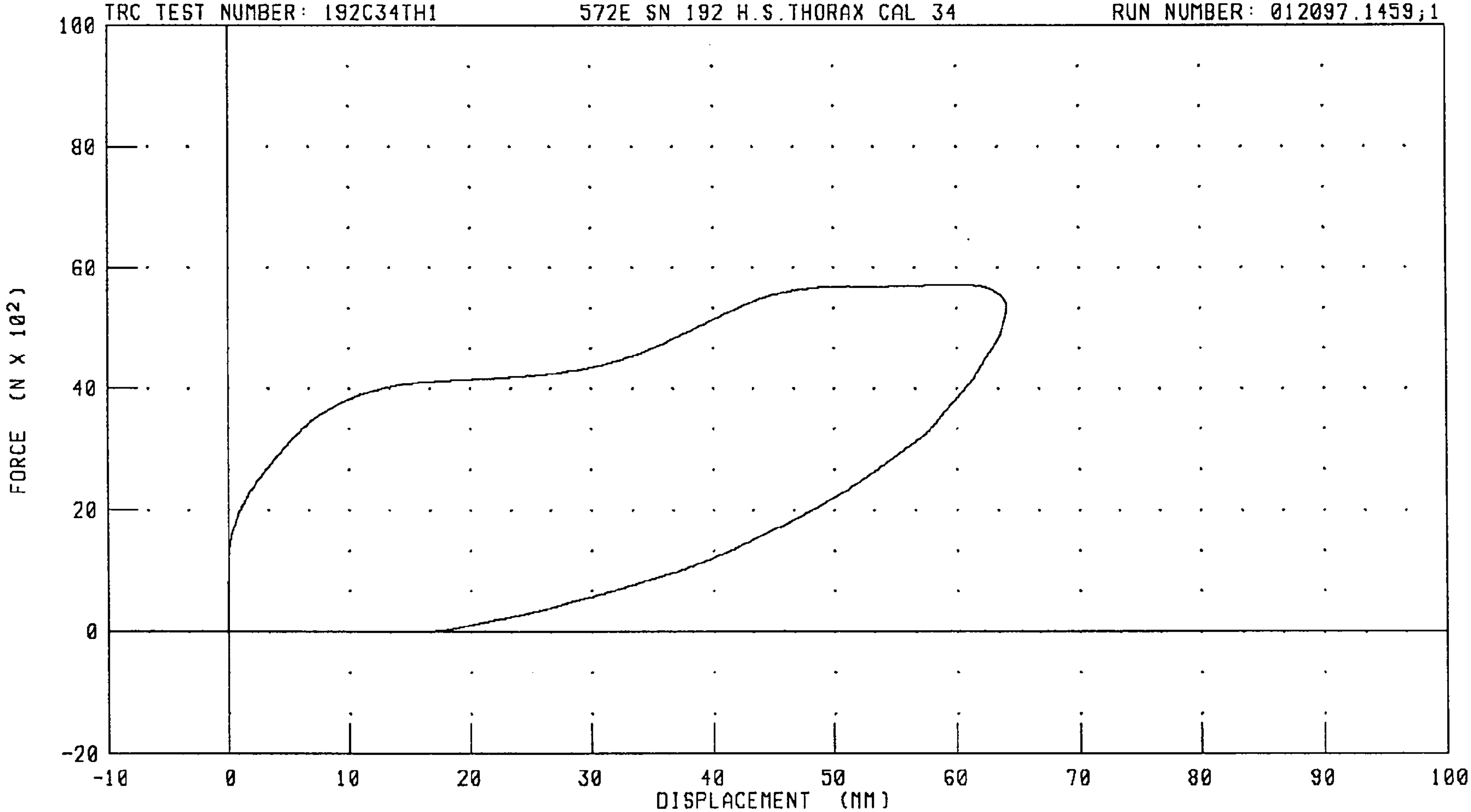
TRC TEST NUMBER: 192C34TH1 572E SN 192 H.S.THORAX CAL 34 RUN NUMBER: 012097.1459;1



CHANNEL: CSTXD FILTER: CH. CLASS 180 PEAK DATA: 64.15 MM @ 23.84 MS; -0.04 MM @ 0.24 MS

PART 572-E HYBRID III THORAX CALIBRATION
CHEST DISPLACEMENT VS PENDULUM FORCE

TRC TEST NUMBER: 192C34TH1 572E SN 192 H.S.THORAX CAL 34 RUN NUMBER: 012097.1459;1



CHANNEL: CSTXD FILTER: CH. CLASS 180 PEAK DATA: 64.15 MM @ 23.84 MS; -0.04 MM @ 0.24 MS
PENXF CH. CLASS 180 5717.00 N @ 18.56 MS; -23.91 N @ -0.96 MS

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III 21-NOV-96

TRC INC. TEST NO: 192C34RK2 572E SN192 RIGHT KNEE CAL 34

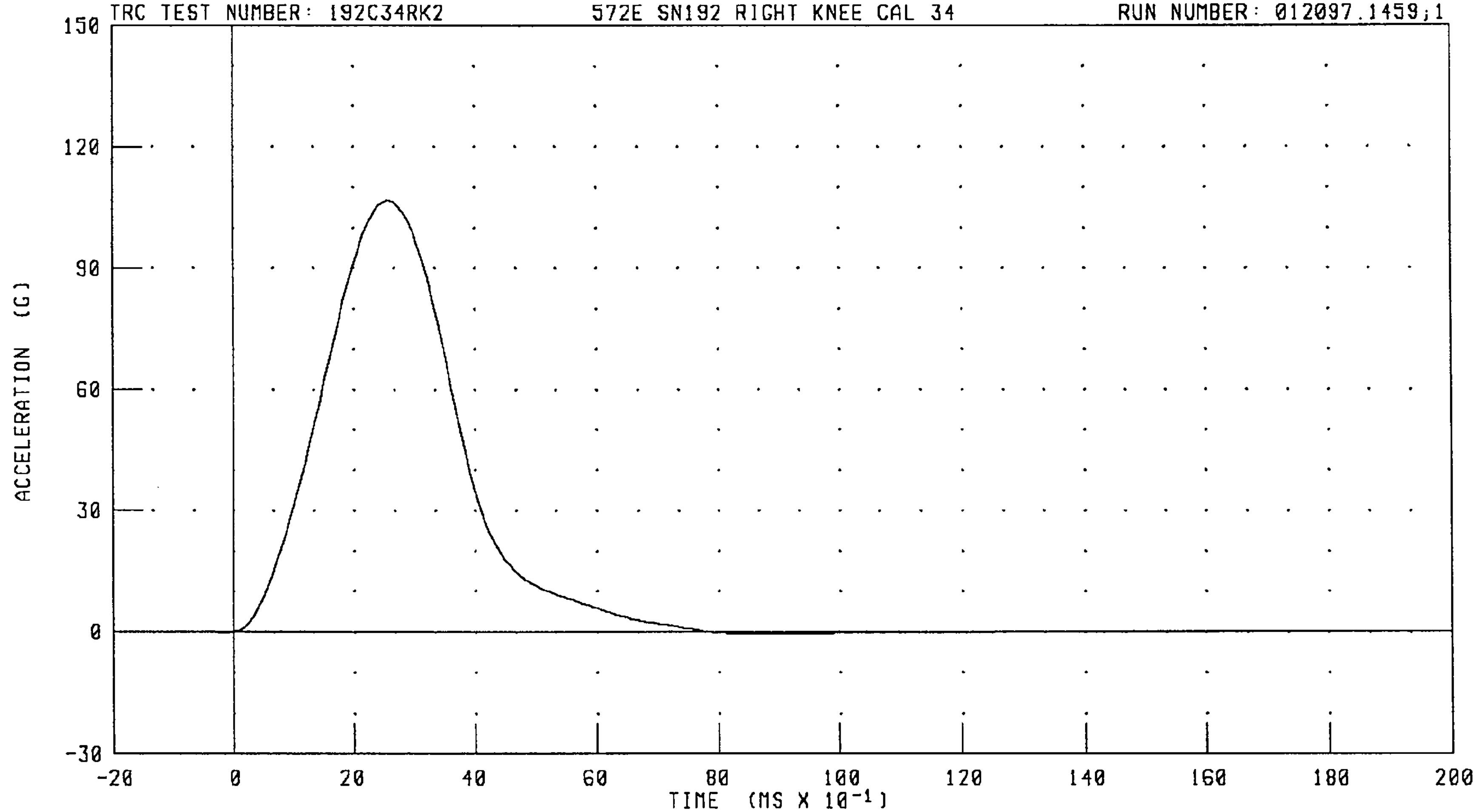
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	30.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.11 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	5220.7 N

TEST MEETS SPECIFICATIONS

TECHNICIAN Richard LeVan RUN NUMBER: 112196.1522;1

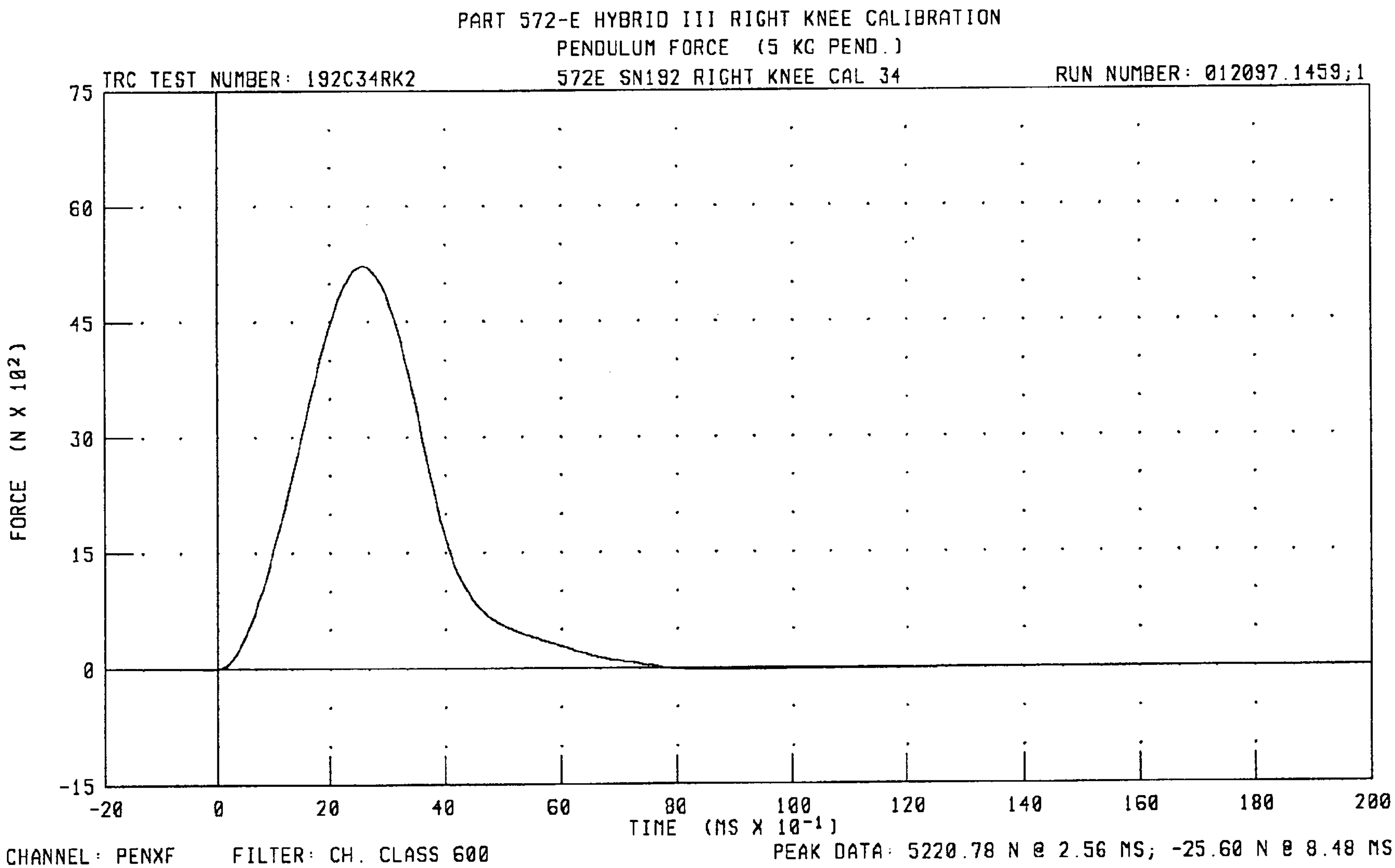
PART 572-E HYBRID III RIGHT KNEE CALIBRATION
PENDULUM DECELERATION (5 KG PEND.)

TRC TEST NUMBER: 192C34RK2 572E SN192 RIGHT KNEE CAL 34 RUN NUMBER: 012097.1459;1



CHANNEL: PENXG FILTER: CH. CLASS 600 PEAK DATA: 106.70 G @ 2.56 MS; -0.52 G @ 8.48 MS

961212


PART 572-E HYBRID III RIGHT KNEE CALIBRATION
PENDULUM FORCE (5 KG PEND.)
TRC TEST NUMBER: 192C34RK2
572E SN192 RIGHT KNEE CAL 34
RUN NUMBER: 012097.1459;1
75
60
45
30
15
0
-15
FORCE (N X 10²)
-20
0
20
40
60
80
100
120
140
160
180
200
TIME (MS X 10⁻¹)
CHANNEL: PENXF
FILTER: CH. CLASS 600
PEAK DATA: 5220.78 N @ 2.56 MS; -25.60 N @ 8.48 MS

961212

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

HYBRID III 21-NOV-96

TRC INC. TEST NO: 192C34LK1 572E SN192 LEFT KNEE CAL 34

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	30.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.11 M/S
PEAK KNEE IMPACT FORCE 5.0 KG PENDULUM	4715 - 5782 N	5610.6 N

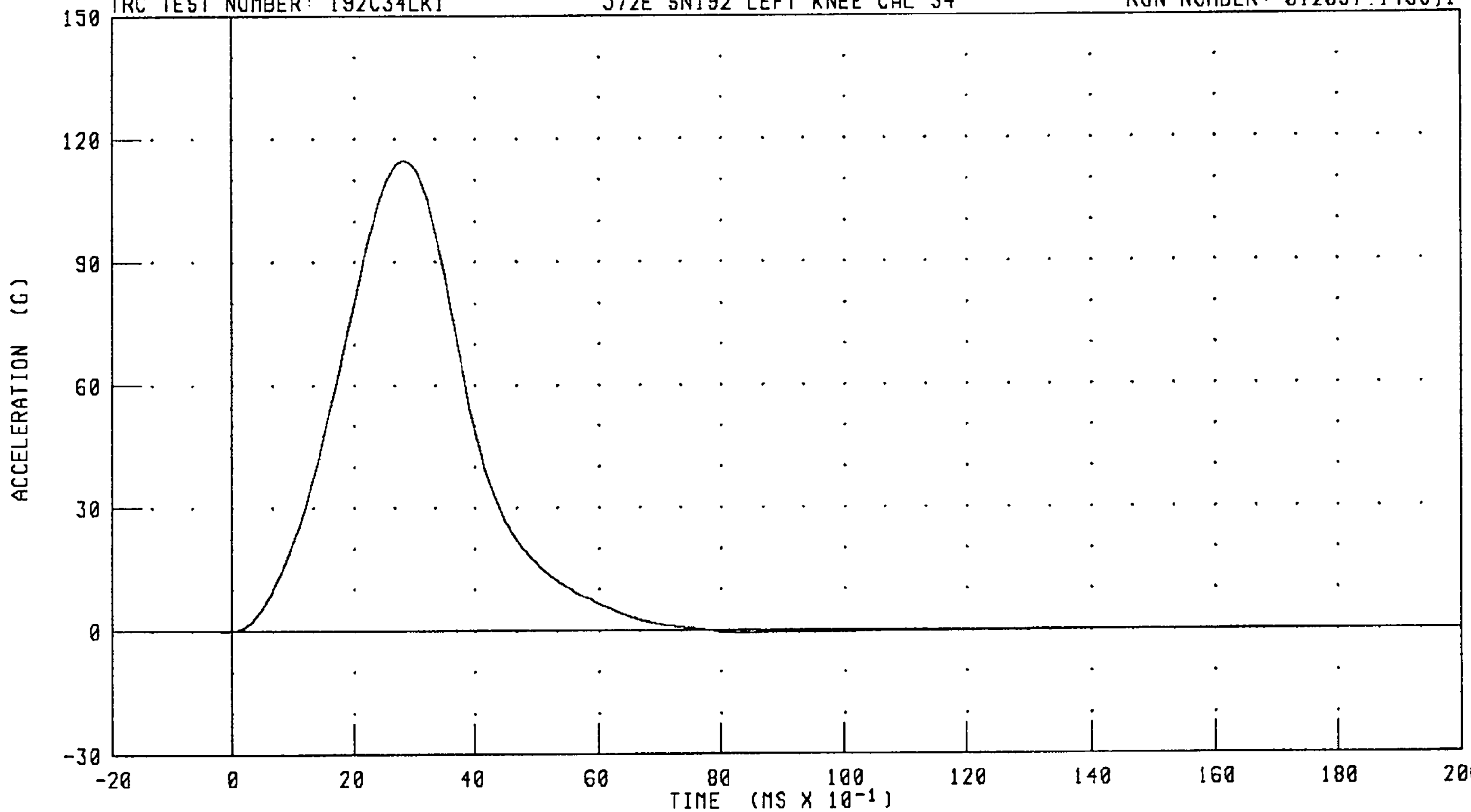
TEST MEETS SPECIFICATIONS

TECHNICIAN Richard Le Van

RUN NUMBER: 112196.1459;1

PART 572-E HYBRID III LEFT KNEE CALIBRATION
PENDULUM DECELERATION (5 KG PEND.)

TRC TEST NUMBER: 192C34LK1 572E SN192 LEFT KNEE CAL 34 RUN NUMBER: 012097.1459;1

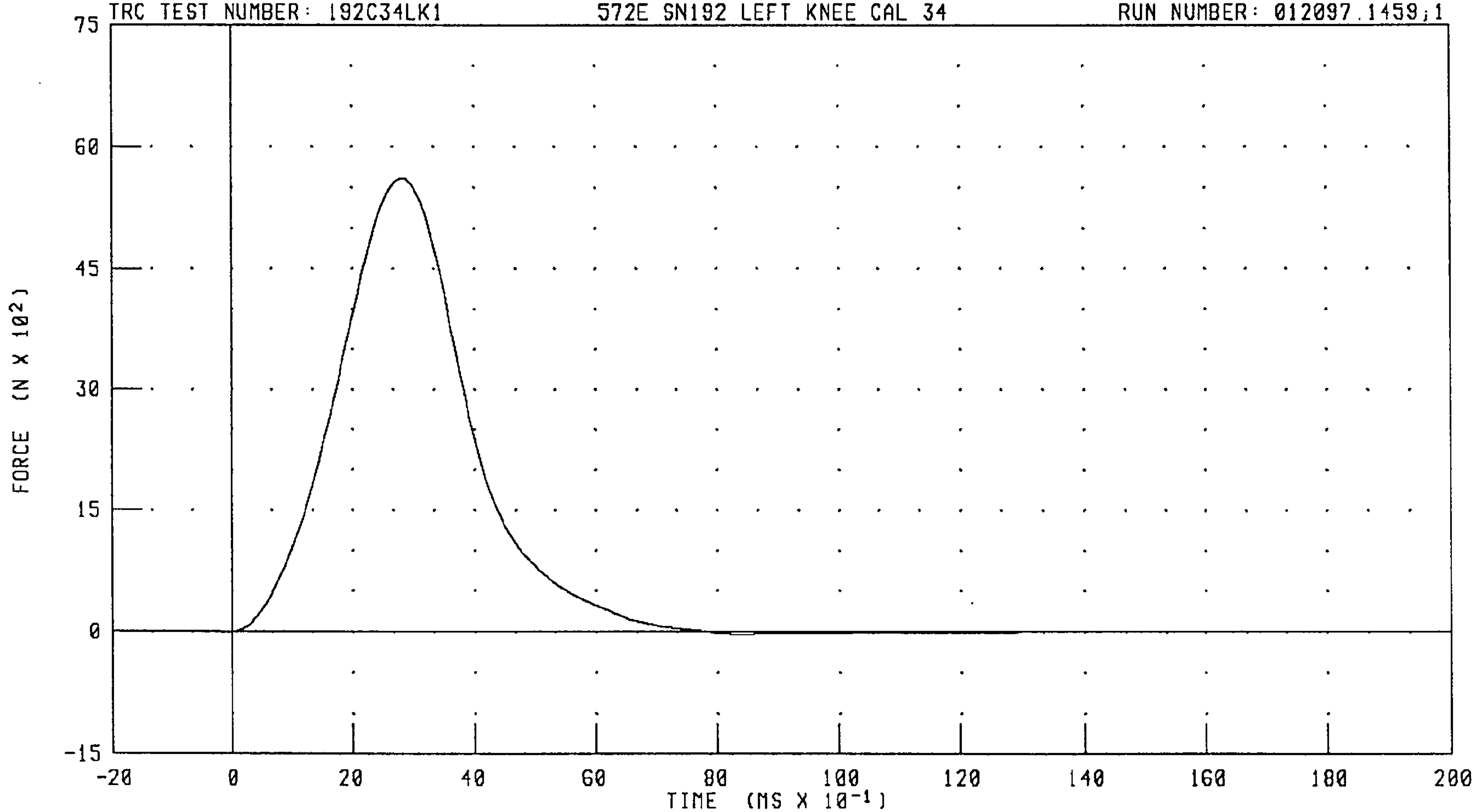


CHANNEL: PENXG FILTER: CH. CLASS 600 PEAK DATA: 114.67 G @ 2.80 MS; -0.64 G @ 8.40 MS

961212

PART 572-E HYBRID III LEFT KNEE CALIBRATION
PENDULUM FORCE (5 KG PEND.)

TRC TEST NUMBER: 192C34LK1 572E SN192 LEFT KNEE CAL 34 RUN NUMBER: 012097.1459;1



CHANNEL: PENXF FILTER: CH. CLASS 600 PEAK DATA: 5610.68 N @ 2.80 MS; -31.50 N @ 8.40 MS

Appendix D

Miscellaneous Test Information

Dummy Instrument Calibrations
Driver Dummy #142

	Serial Number	Model Number	Manufacturer	Calibration Date Last	Due
Head X-axis accelerometer	ACC63	7264	Endevco	07/26/96	01/26/97
Head X-axis accelerometer-redundant	AC8L5	7264	Endevco	08/15/96	02/15/97
Head Y-axis accelerometer	ACC02	7264	Endevco	07/26/96	01/26/97
Head Y-axis accelerometer-redundant	ACCR7	7264	Endevco	08/15/96	02/15/97
Head Z-axis accelerometer	ACCF3	7264	Endevco	07/26/96	01/26/97
Head Z-axis accelerometer-redundant	A68JJ	7264	Endevco	08/15/96	02/15/97
Chest X-axis accelerometer	ACC14	7264	Endevco	07/26/96	01/26/97
Chest X-axis accelerometer-redundant	A65JJ	7264	Endevco	08/15/96	02/15/97
Chest Y-axis accelerometer	ACCR0	7264	Endevco	07/26/96	01/26/97
Chest Y-axis accelerometer-redundant	FH14J	7264	Endevco	08/15/96	02/15/97
Chest Z-axis accelerometer	ACCT5	7264	Endevco	07/26/96	01/26/97
Chest Z-axis accelerometer-redundant	AC745	7264	Endevco	08/15/96	02/15/97
Left femur force load cell	257	2121	Denton	07/29/96	01/29/97
Right femur force load cell	258	2121	Denton	07/29/96	01/29/97
Neck X-axis force load cell[1]	441	1716	Denton	10/19/96	04/19/97
Neck Y-axis force load cell[1]	441	1716	Denton	10/19/96	04/19/97
Neck Z-axis force load cell[1]	441	1716	Denton	10/19/96	04/19/97
Neck Moment about X-axis load cell[1]	441	1716	Denton	10/19/96	04/19/97
Neck Moment about Y-axis load cell[1]	441	1716	Denton	10/19/96	04/19/97
Neck Moment about Z-axis load cell[1]	441	1716	Denton	10/19/96	04/19/97
Pelvis X-axis accelerometer	CY63H	7264	Endevco	08/15/96	02/15/97
Pelvis Y-axis accelerometer	AMWA9	7264	Endevco	08/15/96	02/15/97
Pelvis Z-axis accelerometer	ANA55	7264	Endevco	08/15/96	02/15/97
Chest deflection potentiometer	142	14CB1-2981	Vernitech	08/30/96	02/30/97
Lap belt force load cell	236	3419	Lebow	07/03/96	01/03/97
Shoulder belt force load cell	615	3419	Lebow	07/03/96	01/03/97

Dummy Instrument Calibrations, Cont'd.
Driver Dummy #142

	Serial Number	Model Number	Manufacturer	Calibration Date Last	Due
Left upper tibia moment about X-axis load cell	46	1583	Denton	08/20/96	02/20/97
Left upper tibia moment about Y-axis load cell	46	1583	Denton	08/20/96	02/20/97
Right upper tibia moment about X-axis load cell	35	1583	Denton	08/20/96	02/20/97
Right upper tibia moment about Y-axis load cell	35	1583	Denton	08/20/96	02/20/97
Left Lower tibia X-axis force load cell	42	1584	Denton	08/20/96	02/20/97
Left Lower tibia Z-axis force load cell	42	1584	Denton	08/20/96	02/20/97
Left Lower tibia moment about Y-axis load cell	42	1584	Denton	08/20/96	02/20/97
Right Lower tibia X-axis force load cell	39	1584	Denton	08/20/96	02/20/97
Right Lower tibia Z-axis force load cell	39	1584	Denton	08/20/96	02/20/97
Right Lower tibia moment about Y-axis load cell	39	1584	Denton	08/20/96	02/20/97
Left foot X-axis accelerometer	APA01	7264	Endevco	08/15/96	02/15/97
Left foot heel Z-axis accelerometer	10102	7264	Endevco	08/15/96	02/15/97
Left foot toe Z-axis accelerometer	10074	7264	Endevco	08/15/96	02/15/97
Right foot X-axis accelerometer	10088	7264	Endevco	08/15/96	02/15/97
Right foot heel Z-axis accelerometer	10089	7264	Endevco	08/15/96	02/15/97
Right foot toe Z-axis accelerometer	10087	7264	Endevco	08/15/96	02/15/97

Dummy Instrument Calibrations, Cont'd.
Driver Dummy #142

	Serial Number	Model Number	Manufacturer	Calibration Date Last	Calibration Date Due
Left knee left sensor	21	1587	Denton	08/20/96	02/20/97
Left knee right sensor	21	1587	Denton	08/20/96	02/20/97
Right knee left sensor	42	1587	Denton	08/20/96	02/20/97
Right knee right sensor	42	1587	Denton	08/20/96	02/20/97

Dummy Instrument Calibrations, Cont'd.
Right Front Passenger Dummy #192

	Serial Number	Model Number	Manufacturer	Calibration Date Last	Due
Head X-axis accelerometer	AAL54	7264	Endevco	07/26/96	01/26/97
Head X-axis accelerometer-redundant	AJ8J7	7264	Endevco	08/15/96	02/15/97
Head Y-axis accelerometer	AAMP5	7264	Endevco	07/26/96	01/26/97
Head Y-axis accelerometer-redundant	J10458	7264	Endevco	08/15/96	02/15/97
Head Z-axis accelerometer	ACB35	7264	Endevco	07/26/96	01/26/97
Head Z-axis accelerometer-redundant	AC8W6	7264	Endevco	08/15/96	02/15/97
Chest X-axis accelerometer	ACCD0	7264	Endevco	07/26/96	01/26/97
Chest X-axis accelerometer-redundant	A79GJ	7264	Endevco	08/15/96	02/15/97
Chest Y-axis accelerometer	ACC82	7264	Endevco	07/26/96	01/26/97
Chest Y-axis accelerometer-redundant	AGR69	7264	Endevco	08/15/96	02/15/97
Chest Z-axis accelerometer	ACC59	7264	Endevco	07/26/96	01/26/97
Chest Z-axis accelerometer-redundant	AAL82	7264	Endevco	08/15/96	02/15/97
Left femur force load cell	263	2121	Denton	07/29/96	01/29/97
Right femur force load cell	264	2121	Denton	07/29/96	01/29/97
Neck X-axis force load cell	445	1716	Denton	07/29/96	01/29/97
Neck Y-axis force load cell	445	1716	Denton	07/29/96	01/29/97
Neck Z-axis force load cell	445	1716	Denton	07/29/96	01/29/97
Neck Moment about X-axis load cell	445	1716	Denton	07/29/96	01/29/97
Neck Moment about Y-axis load cell	445	1716	Denton	07/29/96	01/29/97
Neck Moment about Z-axis load cell	445	1716	Denton	07/29/96	01/29/97
Pelvis X-axis accelerometer	AJ694	7264	Endevco	08/15/96	02/15/97
Pelvis Y-axis accelerometer	AJ656	7264	Endevco	08/15/96	02/15/97
Pelvis Z-axis accelerometer	AJ788	7264	Endevco	08/15/96	02/15/97
Chest deflection potentiometer	87313-96	14CB1-2981	Vernitech	08/30/96	02/30/97
Lap belt force load cell	612	3419	Lebow	07/03/96	01/03/97
Shoulder belt force load cell	590	3419	Lebow	07/03/96	01/03/97

Dummy Instrument Calibrations, Cont'd.
Right Front Passenger Dummy #192

	Serial Number	Model Number	Manufacturer	Calibration Date Last	Calibration Date Due
Left upper tibia moment about X-axis load cell	617	1583	Denton	08/20/96	02/20/97
Left upper tibia moment about Y-axis load cell	617	1583	Denton	08/20/96	02/20/97
Right upper tibia moment about X-axis load cell	616	1583	Denton	08/20/96	02/20/97
Right upper tibia moment about Y-axis load cell	616	1583	Denton	08/20/96	02/20/97
Left Lower tibia X-axis force load cell	600	1584	Denton	08/20/96	02/20/97
Left Lower tibia Z-axis force load cell	600	1584	Denton	08/20/96	02/20/97
Left Lower tibia moment about Y-axis load cell	600	1584	Denton	08/20/96	02/20/97
Right Lower tibia X-axis force load cell	599	1584	Denton	08/20/96	02/20/97
Right Lower tibia Z-axis force load cell	599	1584	Denton	08/20/96	02/20/97
Right Lower tibia moment about Y-axis load cell	599	1584	Denton	08/20/96	02/20/97
Left foot X-axis accelerometer	10073	7264	Endevco	08/15/96	02/15/97
Left foot heel Z-axis accelerometer	10263	7264	Endevco	08/15/96	02/15/97
Left foot toe Z-axis accelerometer	10101	7264	Endevco	08/15/96	02/15/97
Right foot X-axis accelerometer	APYT4	7264	Endevco	08/15/96	02/15/97
Right foot heel Z-axis accelerometer	AP0R8	7264	Endevco	08/15/96	02/15/97
Right foot toe Z-axis accelerometer	10076	7264	Endevco	08/15/96	02/15/97

Dummy Instrument Calibrations, Cont'd.
Right Front Passenger Dummy #192

	Serial Number	Model Number	Manufacturer	Calibration Date Last	Calibration Date Due
Left knee left sensor	574	1587	Denton	08/20/96	02/20/97
Left knee right sensor	574	1587	Denton	08/20/96	02/20/97
Right knee left sensor	573	1587	Denton	08/20/96	02/20/97
Right knee right sensor	573	1587	Denton	08/20/96	02/20/97

Vehicle and Calibration Laboratory Instrument Calibrations

Vehicle Accelerometers

	Serial Number	Model Number	Manufacturer	Calibration Date Last	Due
Left rear seat crossmember X-axis	J14150	7264	Endevco	10/04/96	04/04/97
Left rear seat crossmember X-axis redundant	J10789	7264	Endevco	11/13/96	05/13/97
Right rear seat crossmember X-axis	J11342	7264	Endevco	08/16/96	02/16/97
Right rear seat crossmember X-axis redundant	AC8P6	7264	Endevco	07/10/96	01/10/97
Engine top X-axis	10232	7264	Endevco	07/01/96	01/01/97
Engine bottom X-axis	AGRF2	7264	Endevco	07/01/96	01/01/97
Right brake caliper X-axis	J11039	7264	Endevco	07/01/96	01/01/97
Left brake caliper X-axis	J11527	7264	Endevco	05/20/96	11/20/96
Instrument panel center X-axis	AC8K2	7264	Endevco	06/04/96	12/04/96

A. T. D. Calibration Laboratory Instruments

	Serial Number	Model Number	Manufacturer	Calibration Date Last	Due
Neck bending pendulum accelerometer	CB27	7232	Endevco	09/18/96	03/18/97
Neck bending rotary potentiometer (Beta)	006	66575-1-102	Bournes	07/22/96	01/22/97
Neck bending linear potentiometer (Theta)	007	66575-1-102	Bournes	07/22/96	01/22/97
Thorax pendulum accelerometer	CC64	7232	Endevco	09/18/96	03/18/97
Hybrid III femur pendulum accelerometer	CB35	7232	Endevco	09/18/96	03/18/97

Sign Convention
NHTSA Data Tape Reference Guide

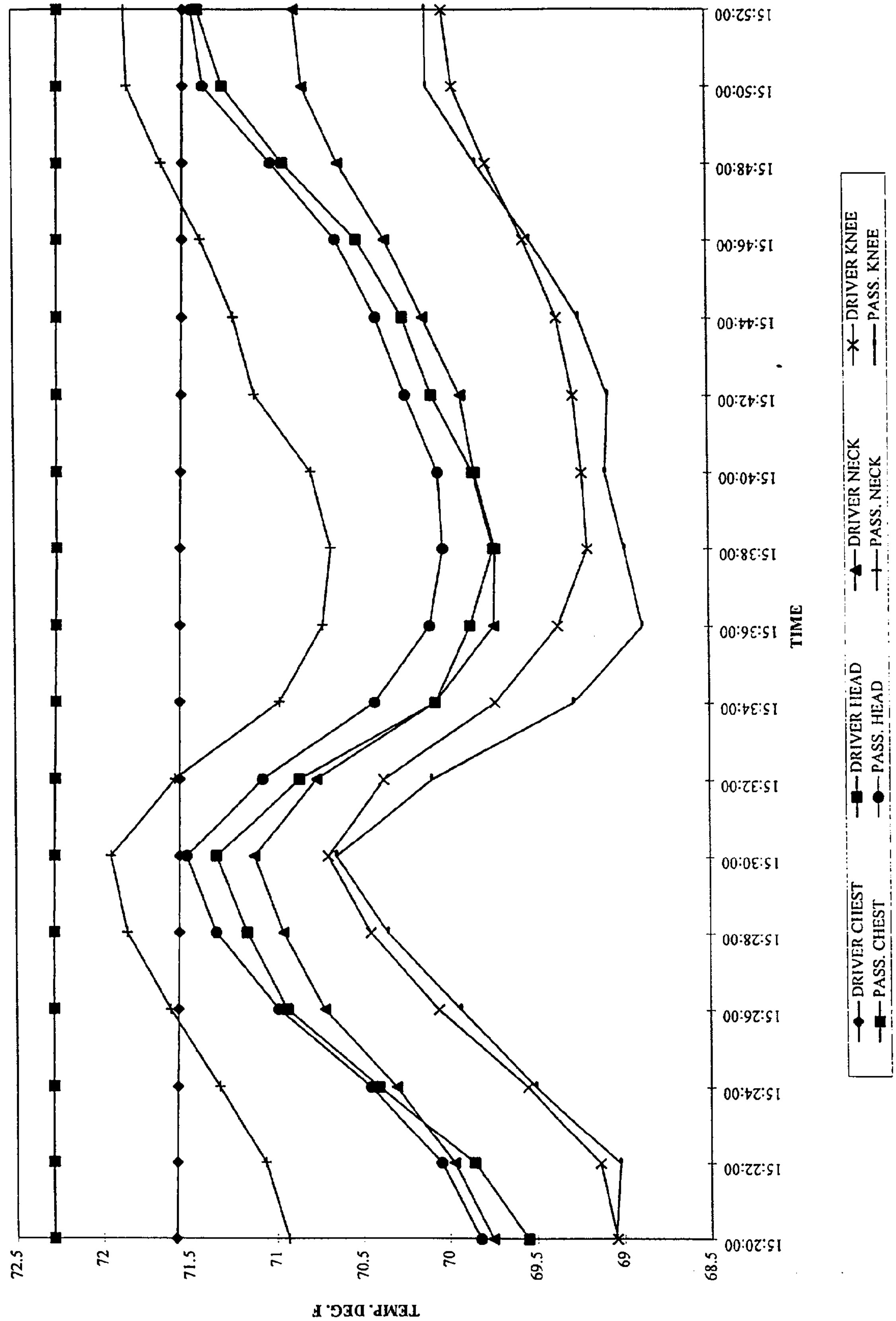
Accelerometers:	+X: Forward	
	+Y: Leftward	
	+Z: Upward	
Potentiometers:	+Chest longitudinal deflection:	Outward
	+Chest lateral deflection:	Leftward
	+Seat belt displacement:	Outward
	+Seat belt extension:	Elongation
	+Knee slider displacement:	Distance between femur and tibia increased (in relation to a seated dummy)
Load cells:	+Femur force:	Tension
	+Seat belt force:	Tension
	+Barrier force:	Tension
Neck load cells:	+X force:	Head pushed forward
	+y force:	Head pushed leftward
	+Z force:	Head pulled upward (tension on neck)
	+X moment:	Right ear rotating toward right shoulder
	+Y moment:	Chin rotating toward chest
	+Z moment:	Chin rotating toward left shoulder
Tibia load cells:	+X force:	Tension
	+Y force:	Tension
	+Z force:	Tension
	+X moment:	Bottom of tibia moving leftward
	+Y moment:	Bottom of tibia moving rearward

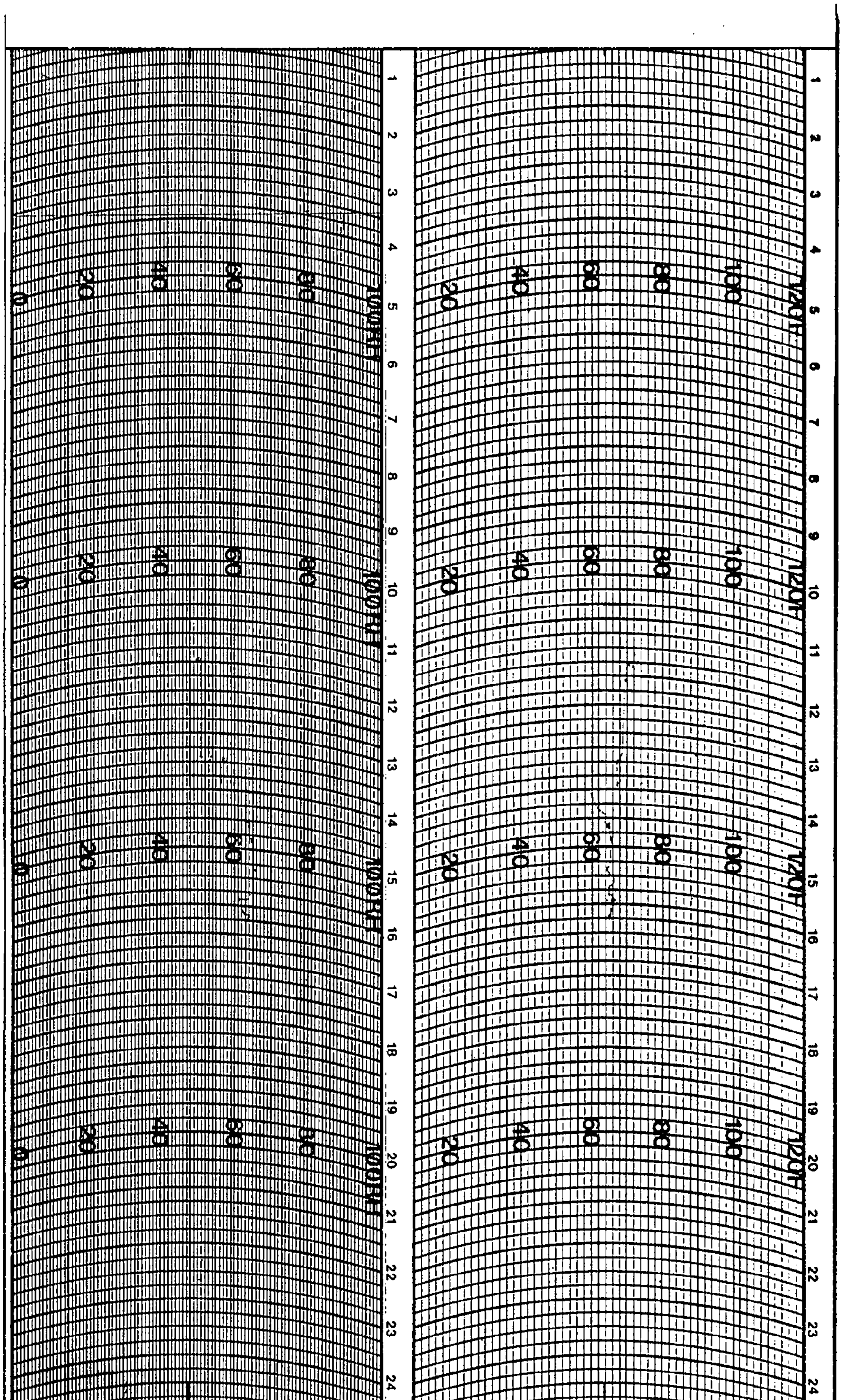
Frequency Response Classes
SAE J211 OCT88

Typical Test Measurements	Channel Class
Vehicle Structural Accelerations for use in:	
Total vehicle comparison	60
Collision simulation input	60
Component analysis	600
Integration for velocity or displacement	180
Barrier Face Forces	60
Belt Restraint System Loads	60
Anthropomorphic Test Device	
Head accelerations (linear and angular)	1000
Neck	
Forces	1000
Moments	600
Thorax	
Spine accelerations	180
Rib accelerations	1000
Sternum accelerations	1000
Deflections	180
Lumbar	
Forces	1000
Moments	1000
Pelvis	
Accelerations	1000
Forces	1000
Moments	1000
Femur/Knee/Tibia/Ankle	
Forces	600
Moments	600
Displacements	180
Sled Accelerations	60
Steering Column Loads	600
Head form Accelerations	1000

Prepared by Transportation Research Center

961212





WEATHER MEASURE
P.O. BOX 41257
SACRAMENTO, CA. 95841
PHONE (916) 481-7565

HYGROTHERMOGRAPH
1 DAY

CHART # C311 D HF
PART # 699123

STATION________________ DATE ON________________ DATE OFF________________

Appendix E

Restraint System Instructions from Owner's Manual

Section 1 Seats and Restraint Systems

Here you'll find information about the seats in your vehicle and how to use your safety belts properly. You can also learn about some things you should *not* do with air bags and safety belts.

Seats and Seat Controls

This section tells you about the seats -- how to adjust them, and fold them up and down.

Manual Front Seat

⚠ **CAUTION:**

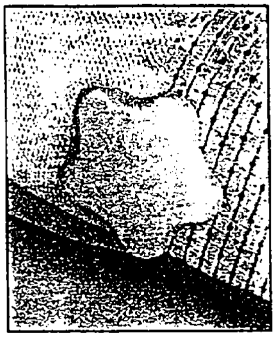
You can lose control of the vehicle if you try to adjust a manual driver's seat while the vehicle is moving. The sudden movement could startle and confuse you, or make you push a pedal when you don't want to. Adjust the driver's seat only when the vehicle is not moving.

Move the lever under the front of the standard seat toward the driver's door to unlock it. Slide the seat to where you want it. Then release the lever and try to move the seat with your body to make sure the seat is locked into place.

Move the lever under the front of the easy entry seat up to unlock it. Slide the seat to where you want it.

Then release the lever and try to move the seat with your body to make sure the seat is locked into place.

Manual Lumbar Support

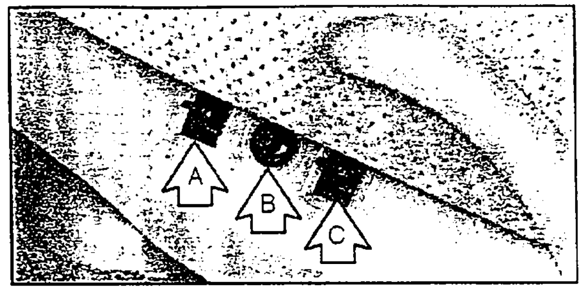


If you have this feature, there will be a knob on the outside of the driver and passenger bucket seats.

Turn the knob counterclockwise to increase lumbar support and clockwise to decrease lumbar support.

Power Driver's Seat (Option)

If you have this feature, there will be a control pad on your driver's seat.

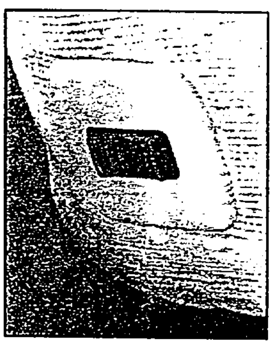


To make the front of the seat move up or down, use control A.

To make the rear of the seat move up or down, use control C.

Use control B to move the whole seat up, down, forward or backward.

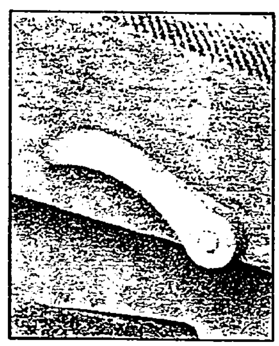
Power Lumbar Control (Option)



If you have this control, it is located on the side of the driver's seat.

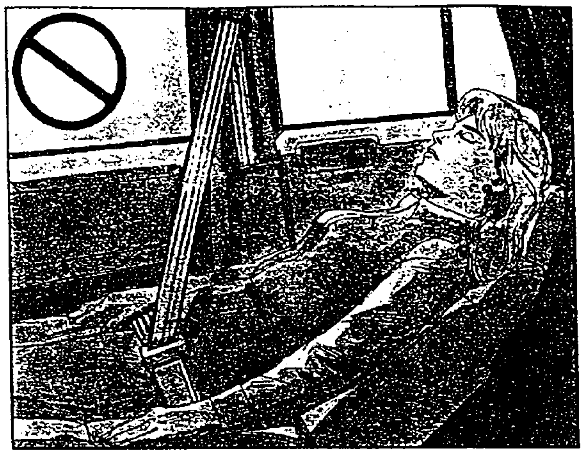
Press and hold the front of the control until you have the desired lumbar support. To decrease lumbar support, press the rear of the control.

Reclining Front Seatbacks



To adjust the seatback, lift the lever on the outer side of the seat.

Release the lever to lock the seatback where you want it. Pull up on the lever and the seat will go to an upright position.



But don't have a seatback reclined if your vehicle is moving.

⚠ CAUTION:

Sitting in a reclined position when your vehicle is in motion can be dangerous. Even if you buckle up, your safety belts can't do their job when you're reclined like this.

The shoulder belt can't do its job because it won't be against your body. Instead, it will be in front of you. In a crash you could go into it, receiving neck or other injuries.

The lap belt can't do its job either. In a crash the belt could go up over your abdomen. The belt forces would be there, not at your pelvic bones. This could cause serious internal injuries.

For proper protection when the vehicle is in motion, have the seatback upright. Then sit well back in the seat and wear your safety belt properly.

Head Restraints

Head restraints are fixed on some models and adjustable on others. Slide an adjustable head restraint up or down so that the top of the restraint is closest to the top of your ears. This position reduces the chance of a neck injury in a crash.

Your adjustable head restraint may also be tilted forward for greater comfort.

Seatback Latches

The front seatback folds forward to let people get into the back seat or to access the storage area behind the seat.

To fold the front seatback forward, lift the latch and push the seat forward.

To return the seatback to the upright position, push the seatback all the way back until the latch catches. If the seatback was reclined before being folded forward, it will return to the reclined position.

⚠ CAUTION:

If the seatback isn't locked, it could move forward in a sudden stop or crash. That could cause injury to the person sitting there. Always press rearward on the seatback to be sure it is locked.

Easy Entry Seat (2-Door Models)

The right front seat of your vehicle makes it easy to get in and out of the rear seat.

- Tilt the right front seatback completely forward and the whole seat will slide forward.
- Move the seatback to its original position after someone gets into the rear seat area. Then move the seat rearward until it locks.

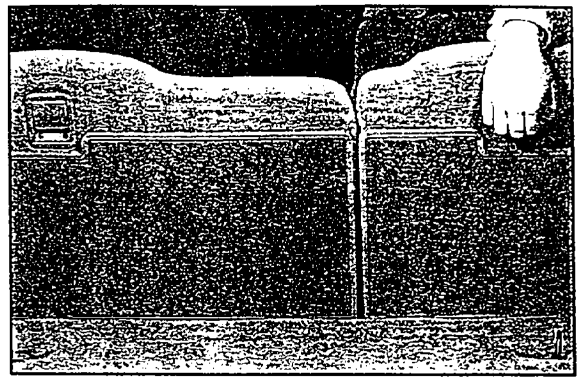
⚠ CAUTION:

If an easy entry right front seat isn't locked, it can move. In a sudden stop or crash, the person sitting there could be injured. After you've used it, be sure to push rearward on an easy entry seat to be sure it is locked.

- Tilt the seatback completely forward again to get out.

Rear Seats

Your vehicle has a folding rear seat which lets you fold the seatbacks down for more cargo space.



The rear seat release handles are in the upper center of the rear of the seatbacks. Push back on the seatbacks as you pull up on the handles.

To raise the seatbacks. just lift up the seatbacks and push until they lock in the upright position.

Push and pull on the seatbacks to check that the latches have locked in the upright position. If they haven't. have them fixed immediately.

Safety Belts: They're for Everyone

This part of the manual tells you how to use safety belts properly. It also tells you some things you should not do with safety belts.

And it explains the Supplemental Inflatable Restraint (SIR), or air bag system.

⚠ CAUTION:

Don't let anyone ride where he or she can't wear a safety belt properly. If you are in a crash and you're not wearing a safety belt, your injuries can be much worse. You can hit things inside the vehicle or be ejected from it. You can be seriously injured or killed. In the same crash, you might not be if you are buckled up. Always fasten your safety belt, and check that your passengers' belts are fastened properly too.

⚠ CAUTION:

It is extremely dangerous to ride in a cargo area, inside or outside of a vehicle. In a collision, people riding in these areas are more likely to be seriously injured or killed. Do not allow people to ride in any area of your vehicle that is not equipped with seats and safety belts. Be sure everyone in your vehicle is in a seat and using a safety belt properly.

Your vehicle has a light that comes on as a reminder to buckle up. (See "Safety Belt Reminder Light" in the Index.)

In most states and Canadian provinces, the law says to wear safety belts. Here's why: *They work.*

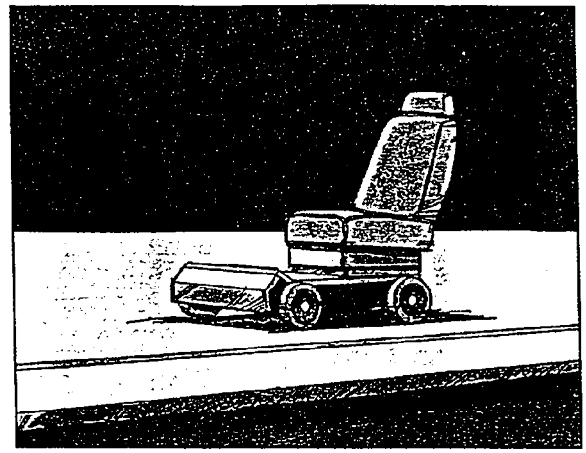
You never know if you'll be in a crash. If you do have a crash, you don't know if it will be a bad one.

A few crashes are mild, and some crashes can be so serious that even buckled up a person wouldn't survive. But most crashes are in between. In many of them, people who buckle up can survive and sometimes walk away. Without belts they could have been badly hurt or killed.

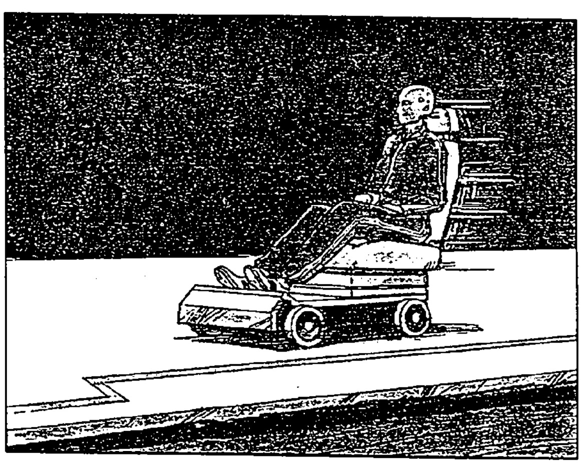
After more than 25 years of safety belts in vehicles, the facts are clear. In most crashes buckling up does matter ... a lot!

Why Safety Belts Work

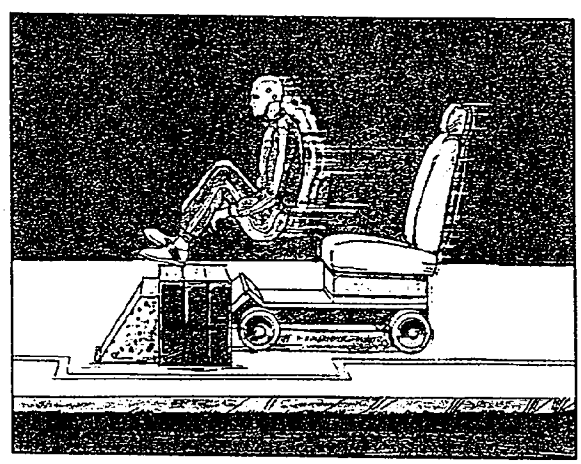
When you ride in or on anything, you go as fast as it goes.



Take the simplest vehicle. Suppose it's just a seat on wheels.

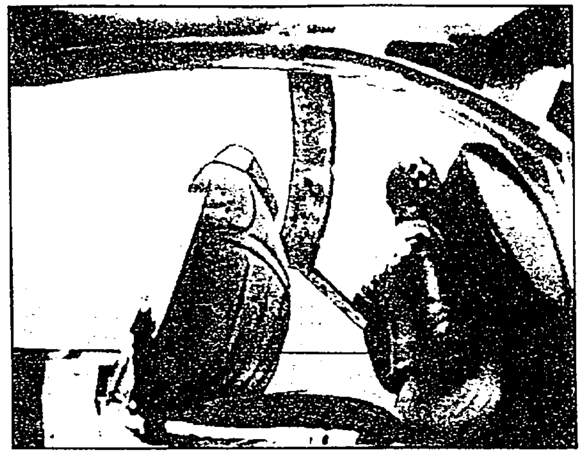


Put someone on it.

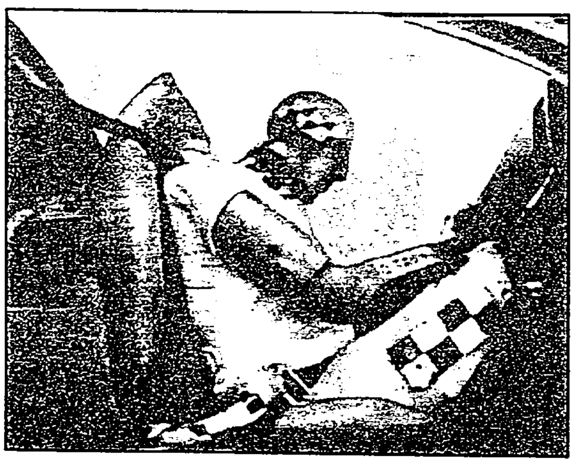


Get it up to speed. Then stop the vehicle. The rider doesn't stop.

The person keeps going until stopped by something. In a real vehicle, it could be the windshield ...



or the instrument panel ...



or the safety belts!

With safety belts, you slow down as the vehicle does. You get more time to stop. You stop over more distance, and your strongest bones take the forces. That's why safety belts make such good sense.

Here Are Questions Many People Ask About Safety Belts -- and the Answers

Q: **Won't I be trapped in the vehicle after an accident if I'm wearing a safety belt?**

A: You *could* be -- whether you're wearing a safety belt or not. But you can unbuckle a safety belt, even if you're upside down. And your chance of being conscious during and after an accident, so you *can* unbuckle and get out, is *much* greater if you are belted.

Q: **If my vehicle has air bags, why should I have to wear safety belts?**

A: Air bags are in many vehicles today and will be in most of them in the future. But they are supplemental systems only; so they work *with* safety belts -- not instead of them. Every air bag system ever offered for sale has required the use of safety belts. Even if you're in a vehicle that has air bags, you still have to buckle up to get the most protection. That's true not only in frontal collisions, but especially in side and other collisions.

Q: If I'm a good driver, and I never drive far from home, why should I wear safety belts?

A: You may be an excellent driver, but if you're in an accident -- even one that isn't your fault -- you and your passengers can be hurt. Being a good driver doesn't protect you from things beyond your control, such as bad drivers.

Most accidents occur within 25 miles (40 km) of home. And the greatest number of serious injuries and deaths occur at speeds of less than 40 mph (65 km/h).

Safety belts are for everyone.

How to Wear Safety Belts Properly

Adults

This part is only for people of adult size.

Be aware that there are special things to know about safety belts and children. And there are different rules for smaller children and babies. If a child will be riding in your vehicle, see the part of this manual called "Children." Follow those rules for everyone's protection.

First, you'll want to know which restraint systems your vehicle has.

We'll start with the driver position.

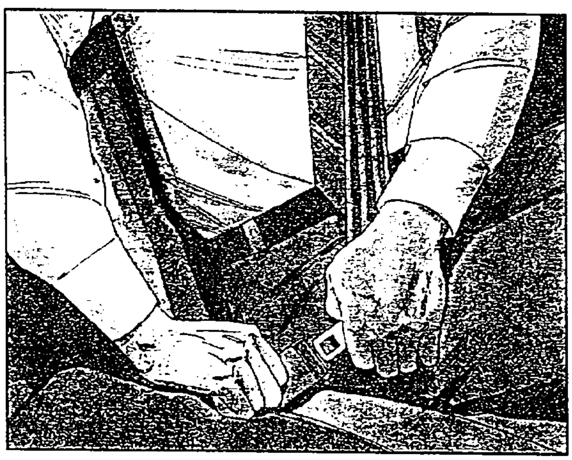
Driver Position

This part describes the driver's restraint system.

Lap-Shoulder Belt

The driver has a lap-shoulder belt. Here's how to wear it properly.

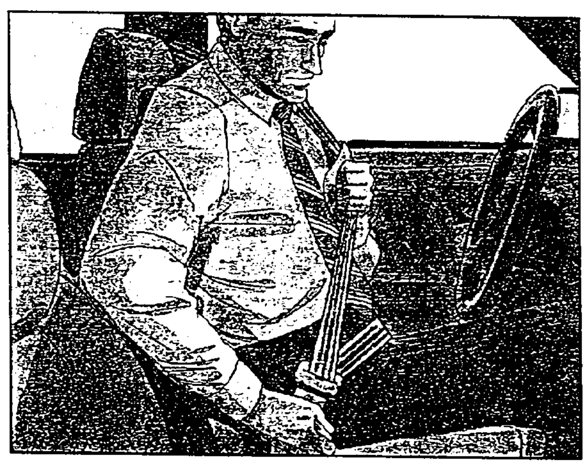
1. Close and lock the door.
2. Adjust the seat (to see how, see "Seats" in the Index) so you can sit up straight.



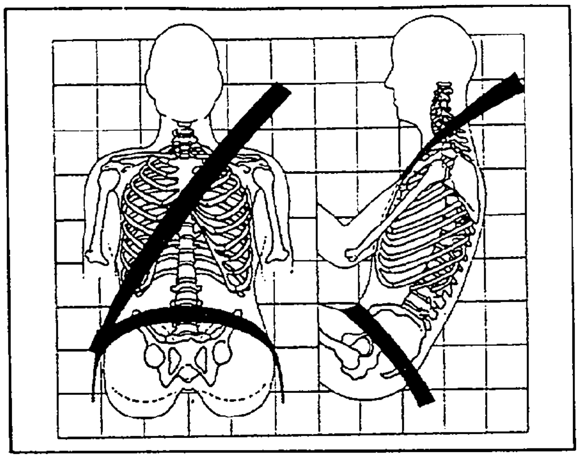
3. Pick up the latch plate and pull the belt across you. Don't let it get twisted.
4. Push the latch plate into the buckle until it clicks.

   Pull up on the latch plate to make sure it is secure. If the belt isn't long enough, see "Safety Belt Extender" at the end of this section.

   Make sure the release button on the buckle is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.



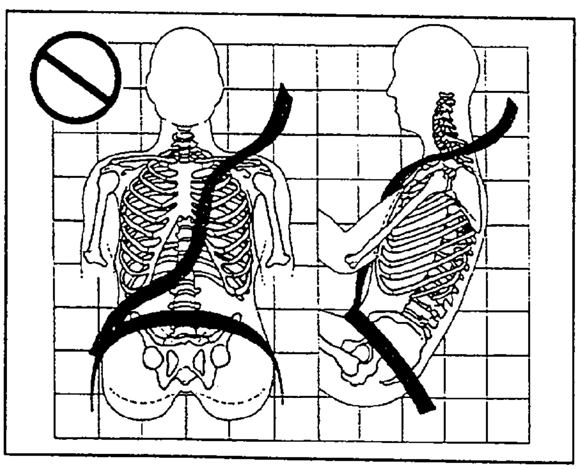
5. To make the lap part tight, pull down on the buckle end of the belt as you pull up on the shoulder belt.



The lap part of the belt should be worn low and snug on the hips, just touching the thighs. In a crash, this applies force to the strong pelvic bones. And you'd be less likely to slide under the lap belt. If you slid under it, the belt would apply force at your abdomen. This could cause serious or even fatal injuries. The shoulder belt should go over the shoulder and across the chest. These parts of the body are best able to take belt restraining forces.

The safety belt locks if there's a sudden stop or a crash.

Q: What's wrong with this?

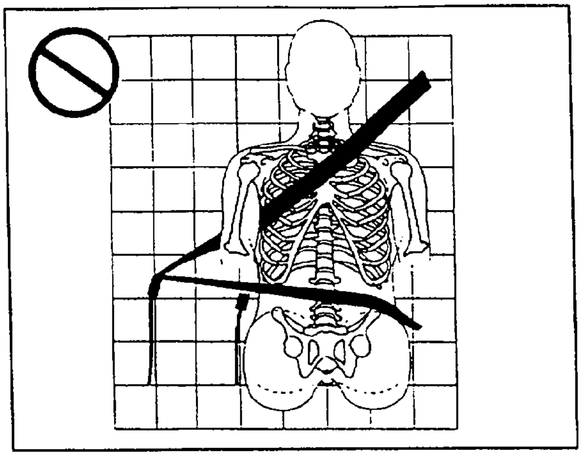


A: The shoulder belt is too loose. It won't give nearly as much protection this way.

⚠ CAUTION:

You can be seriously hurt if your shoulder belt is too loose. In a crash, you would move forward too much, which could increase injury. The shoulder belt should fit against your body.

Q: What's wrong with this?

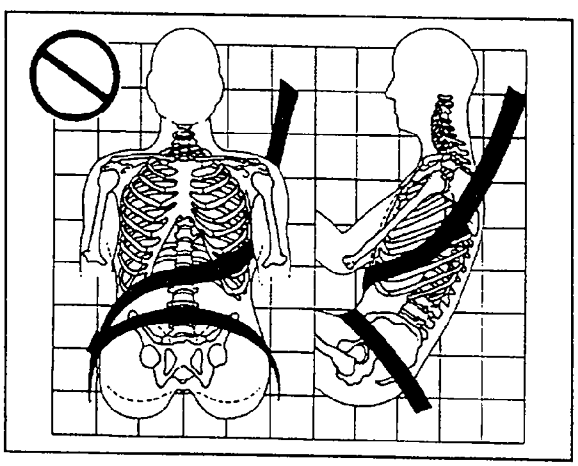


A: The belt is buckled in the wrong place.

⚠ CAUTION:

You can be seriously injured if your belt is buckled in the wrong place like this. In a crash, the belt would go up over your abdomen. The belt forces would be there, not at the pelvic bones. This could cause serious internal injuries. Always buckle your belt into the buckle nearest you.

Q: What's wrong with this?

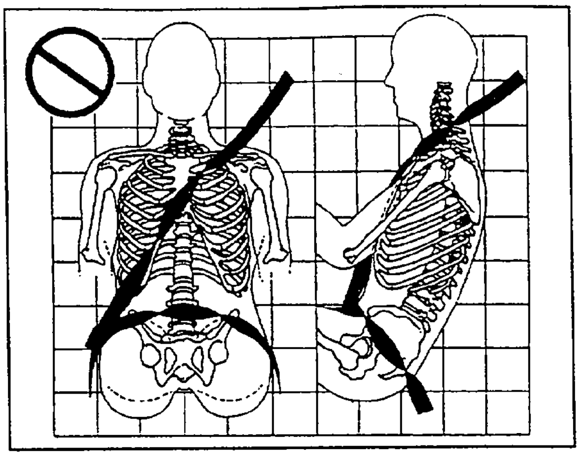


A: The shoulder belt is worn under the arm. It should be worn over the shoulder at all times.

⚠ CAUTION:

You can be seriously injured if you wear the shoulder belt under your arm. In a crash, your body would move too far forward, which would increase the chance of head and neck injury. Also, the belt would apply too much force to the ribs, which aren't as strong as shoulder bones. You could also severely injure internal organs like your liver or spleen.

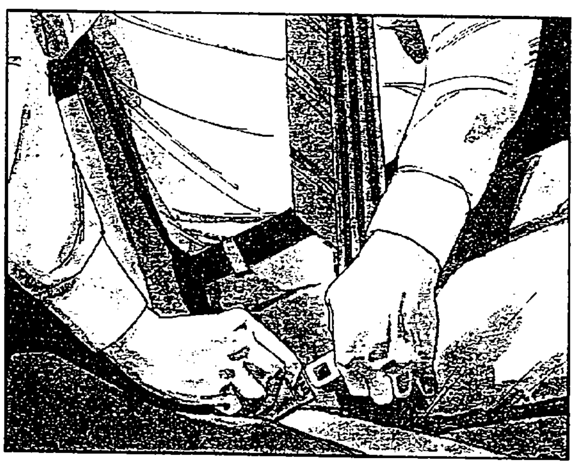
Q: What's wrong with this?



A: The belt is twisted across the body.

⚠ CAUTION:

You can be seriously injured by a twisted belt. In a crash, you wouldn't have the full width of the belt to spread impact forces. If a belt is twisted, make it straight so it can work properly, or ask your dealer to fix it.



To unlatch the belt, just push the button on the buckle. The belt should go back out of the way.

Before you close the door, be sure the belt is out of the way. If you slam the door on it, you can damage both the belt and your vehicle.

Supplemental Inflatable Restraint (SIR) System

This part explains the Supplemental Inflatable Restraint (SIR) system or air bag system.

Your vehicle has an air bag for the driver.

Here are the most important things to know about the air bag system:

⚠ CAUTION:

You can be severely injured or killed in a crash if you aren't wearing your safety belt -- even if you have an air bag. Wearing your safety belt during a crash helps reduce your chance of hitting things inside the vehicle or being ejected from it. Air bags are "supplemental restraints" to the safety belts. All air bags are designed to work with safety belts, but don't replace them. Air bags are designed to work only in moderate to severe crashes where the front of your vehicle hits something. They aren't designed to inflate at all

CAUTION: (Continued)

CAUTION: (Continued)

in rollover, rear, side or low-speed frontal crashes. Everyone in your vehicle should wear a safety belt properly -- whether or not there's an air bag for that person.

⚠ CAUTION:

Air bags inflate with great force, faster than the blink of an eye. If you're too close to an inflating air bag, it could seriously injure you. Safety belts help keep you in position before and during a crash. Always wear your safety belt, even with an air bag, and sit as far back as you can while still maintaining control of your vehicle.

AIR
BAG

There is an air bag readiness light on the instrument panel, which shows AIR BAG.

The system checks the air bag electrical system for malfunctions. The light tells you if there is an electrical problem. See "Air Bag Readiness Light" in the Index for more information.

How the Air Bag System Works

Where is the air bag?

The driver's air bag is in the middle of the steering wheel.

⚠ CAUTION:

Don't attach anything to, or put anything between an occupant and an air bag. If something is between the driver and the air bag, the bag might not inflate properly or it might force the object into you and cause injury. The path of an inflating air bag must be kept clear, so don't attach or put anything on or near the steering wheel hub.

When should an air bag inflate?

An air bag is designed to inflate in a moderate to severe frontal or near-frontal crash. The air bag will inflate only if the impact speed is above the system's designed "threshold level." If your vehicle goes straight into a wall that doesn't move or deform, the threshold level is about 14 to 18 mph (23 to 29 km/h). The threshold level can vary, however, with specific vehicle design, so that it can be somewhat above or below this range. If your vehicle strikes something that will move or deform, such as a parked car, the threshold level will be higher. The air bag is not designed to inflate in rollovers, side impacts or rear impacts, because inflation would not help the occupant.

In any particular crash, no one can say whether an air bag should have inflated simply because of the damage to a vehicle or because of what the repair costs were. Inflation is determined by the angle of the impact and how quickly the vehicle slows down in frontal and near-frontal impacts.

The air bag system is designed to work properly under a wide range of conditions, including off-road usage. Observe safe driving speeds, especially on rough terrain. As always, wear your safety belt. See "Off-Road Driving" in the Index for more tips on off-road driving.

What makes an air bag inflate?

In an impact of sufficient severity, the air bag sensing system detects that the vehicle is in a crash. The sensing system triggers a release of gas from the inflator, which inflates the air bag. The inflator, air bag and related hardware are all part of the air bag module inside the steering wheel.

How does an air bag restrain?

In moderate to severe frontal or near-frontal collisions, even belted occupants can contact the steering wheel. The air bag supplements the protection provided by safety belts. Air bags distribute the force of the impact more evenly over the occupant's upper body, stopping the occupant more gradually. But air bags would not help you in many types of collisions, including rollovers, rear impacts and side impacts, primarily because an occupant's motion is not toward the air bag. Air bags should never be regarded as anything more than a supplement to safety belts, and then only in moderate to severe frontal or near-frontal collisions.

What will you see after an air bag inflates?

After an air bag inflates, it quickly deflates, so quickly that some people may not even realize the air bag inflated. Some components of the air bag module in the steering wheel hub will be hot for a short time. The parts of the bag that come into contact with you may be warm, but not too hot to touch. There will be some smoke and dust coming from vents in the deflated air bag. Air bag inflation doesn't prevent the driver from seeing or from being able to steer the vehicle, nor does it stop people from leaving the vehicle.

⚠ CAUTION:

When an air bag inflates, there is dust in the air. This dust could cause breathing problems for people with a history of asthma or other breathing trouble. To avoid this, everyone in the vehicle should get out as soon as it is safe to do so. If you have breathing problems but can't get out of the vehicle after an air bag inflates, then get fresh air by opening a window or door.

- The air bag is designed to inflate only once. After it inflates, you'll need some new parts for your air bag system. If you don't get them, the air bag system won't be there to help protect you in another crash. A new system will include the air bag module and possibly other parts. The service manual for your vehicle covers the need to replace other parts.
- Your vehicle is equipped with a diagnostic module, which records information about the air bag system. The module records information about the readiness of the system, when the sensors are activated and driver's safety belt usage at deployment.
- Let only qualified technicians work on your air bag system. Improper service can mean that your air bag system won't work properly. See your dealer for service.

NOTICE:

If you damage the cover for the driver's air bag, the bag may not work properly. You may have to replace the air bag module. Do not open or break the air bag cover.

Servicing Your Air Bag-Equipped Vehicle

The air bag affects how your vehicle should be serviced. There are parts of the air bag system in several places around your vehicle. You don't want the system to inflate while someone is working on your vehicle. Your GM dealer and the GM Service Manual have information about servicing your vehicle and the air bag system. To purchase a service manual, see "Service and Owner Publications" in the Index.

⚠ CAUTION:

For up to 10 minutes after the ignition key is turned off and the battery is disconnected, an air bag can still inflate during improper service. You can be injured if you are close to an air bag when it inflates. Avoid wires wrapped with yellow tape, or yellow connectors. They are probably part of the air bag system. Be sure to follow proper service procedures, and make sure the person performing work for you is qualified to do so.

The air bag system does not need regular maintenance.

Adding Equipment to Your Air Bag-Equipped Vehicle

Q: **If I add a push bumper or a bicycle rack to the front of my vehicle, will it keep the air bag from working properly?**

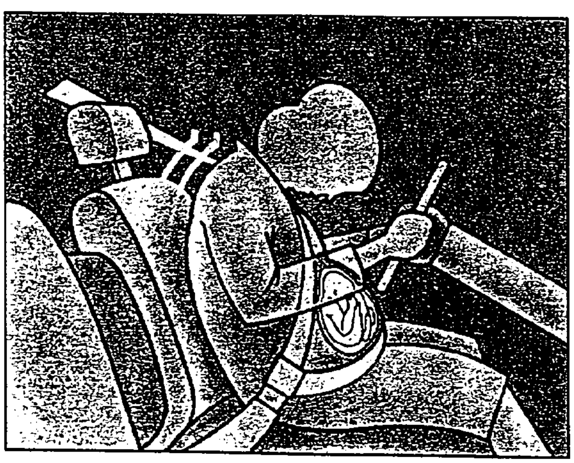
A: As long as the push bumper or bicycle rack is attached to your vehicle so that the vehicle's basic structure isn't changed, it's not likely to keep the air bag from working properly in a crash.

Q: **Is there anything I might add to the front of the vehicle that could keep the air bag from working properly?**

A: Yes. If you add things that change your vehicle's frame, bumper system, front end sheet metal or height, they may keep the air bag system from working properly. Also, the air bag system may not work properly if you relocate any of the air bag sensors. If you have any question about this, you should contact Customer Assistance before you modify your vehicle. (The phone numbers and addresses for Customer Assistance are in Step Two of the Customer Satisfaction Procedure in this manual. See "Customer Satisfaction Procedure" in the Index.)

Safety Belt Use During Pregnancy

Safety belts work for everyone, including pregnant women. Like all occupants, they are more likely to be seriously injured if they don't wear safety belts.



A pregnant woman should wear a lap-shoulder belt, and the lap portion should be worn as low as possible, below the rounding, throughout the pregnancy.

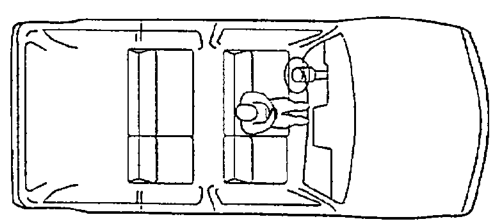
The best way to protect the fetus is to protect the mother. When a safety belt is worn properly, it's more likely that the fetus won't be hurt in a crash. For pregnant women, as for anyone, the key to making safety belts effective is wearing them properly.

Right Front Passenger Position

The right front passenger's safety belt works the same way as the driver's safety belt. See "Driver Position" earlier in this section.

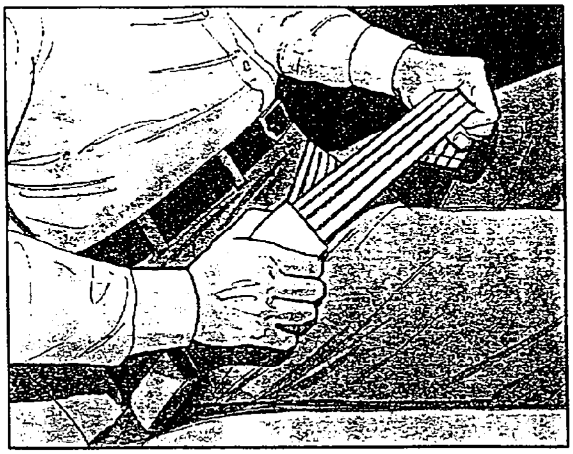
When the shoulder belt is pulled out all the way, it will lock. If it does, let it go back all the way and start again.

Center Front Passenger Position (4-Door Models)

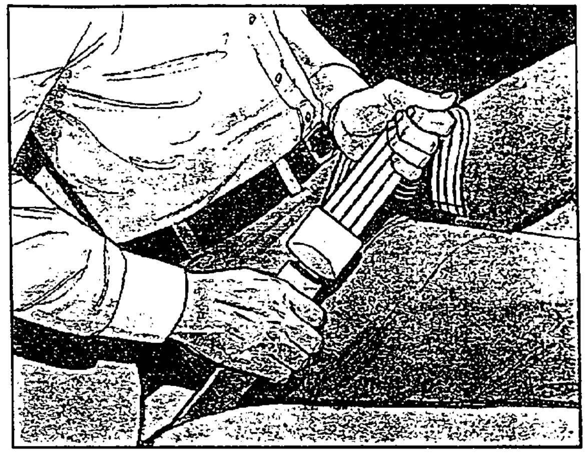


Lap Belt

If your vehicle has a front bench seat, someone can sit in the center position.



When you sit in the center front seating position, you have a lap safety belt, which has no retractor. To make the belt longer, tilt the latch plate and pull it along the belt.



To make the belt shorter, pull its free end as shown until the belt is snug.

Buckle, position and release it the same way as the lap part of a lap-shoulder belt. If the belt isn't long enough, see "Safety Belt Extender" at the end of this section.

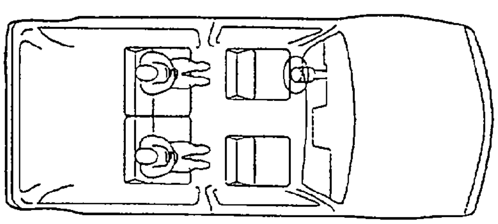
Make sure the release button on the buckle is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.

Rear Seat Passengers

It's very important for rear seat passengers to buckle up! Accident statistics show that unbelted people in the rear seat are hurt more often in crashes than those who are wearing safety belts.

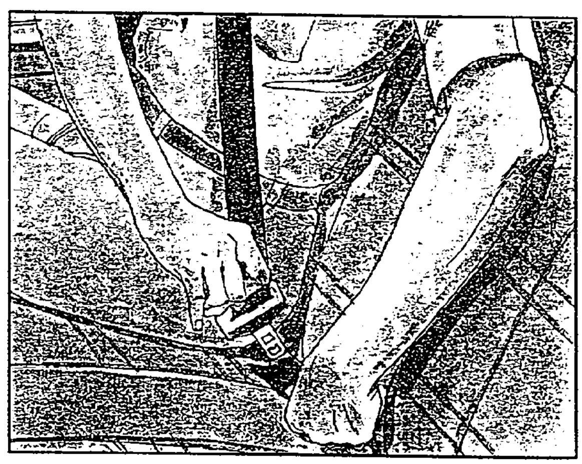
Rear passengers who aren't safety belted can be thrown out of the vehicle in a crash. And they can strike others in the vehicle who are wearing safety belts.

Rear Seat Outside Passenger Positions



Lap-Shoulder Belt

The positions next to the windows have lap-shoulder belts. Here's how to wear one properly.



1. Pick up the latch plate and pull the belt across you. Don't let it get twisted. On four-door models, the shoulder belt may lock if you pull the belt across you very quickly. If this happens, let the belt go back slightly to unlock it. Then pull the belt across you more slowly.

2. Push the latch plate into the buckle until it clicks.

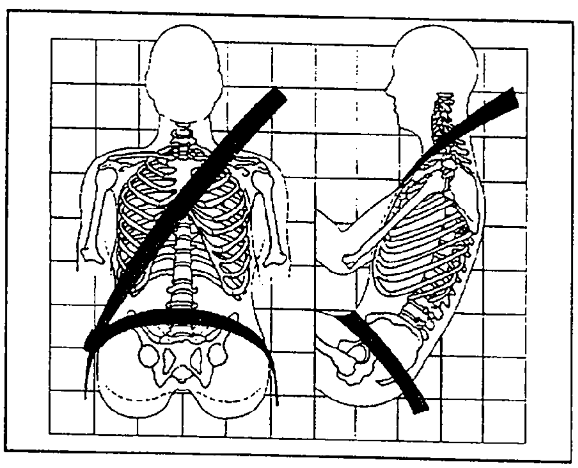
   Pull up on the latch plate to make sure it is secure.

   When the shoulder belt is pulled out all the way, it will lock. If it does, let it go back all the way and start again.

   If the belt is not long enough, see "Safety Belt Extender" at the end of this section.

   Make sure the release button on the buckle is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.

3. To make the lap part tight, pull down on the buckle end of the belt as you pull up on the shoulder part.



The lap part of the belt should be worn low and snug on the hips, just touching the thighs. In a crash, this applies force to the strong pelvic bones.

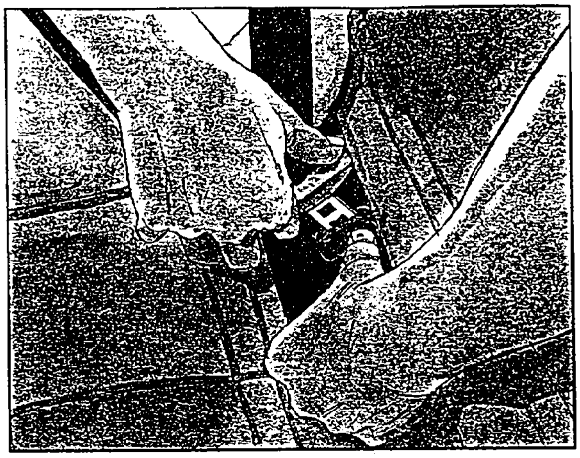
And you'd be less likely to slide under the lap belt. If you slid under it, the belt would apply force at your abdomen. This could cause serious or even fatal injuries. The shoulder belt should go over the shoulder and across the chest. These parts of the body are best able to take belt restraining forces.

The safety belt locks if there's a sudden stop or a crash.

On four-door models, the safety belt also locks if you pull the belt very quickly out of the retractor.

⚠ CAUTION:

You can be seriously hurt if your shoulder belt is too loose. In a crash, you would move forward too much, which could increase injury. The shoulder belt should fit against your body.

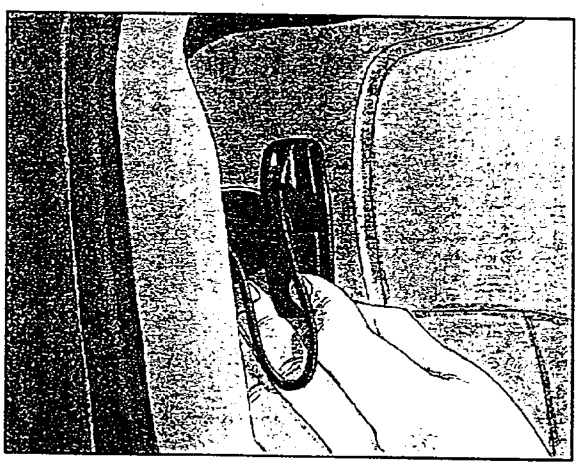


To unlatch the belt, just push the button on the buckle.

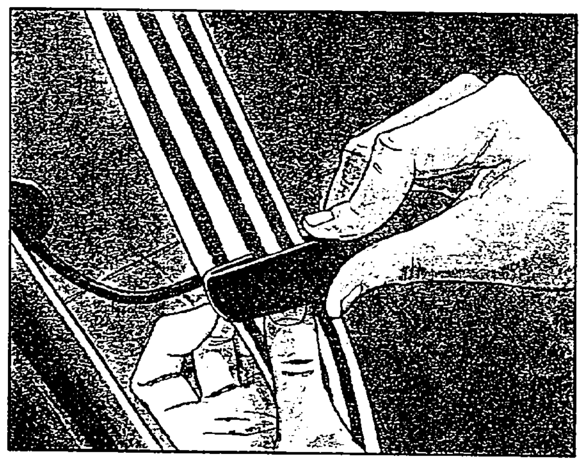
Rear Safety Belt Comfort Guides for Children and Small Adults (4-Door Models)

Four-door models have rear shoulder belt comfort guides. This feature will provide added safety belt comfort for children who have outgrown child restraints and for small adults. When installed on a shoulder belt, the comfort guide pulls the belt away from the neck and head.

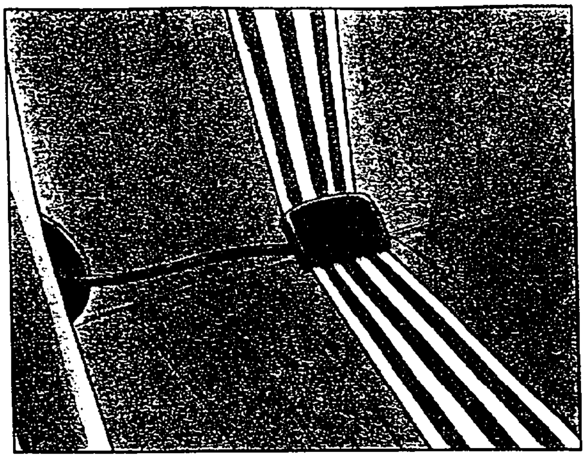
There is one guide for each outside passenger position in the rear seat. To provide added safety belt comfort for children who have outgrown child restraints and for smaller adults, the comfort guides may be installed on the shoulder belts. Here's how to install a comfort guide and use the safety belt:



1. Pull the elastic cord out from between the edge of the seatback and the interior body to remove the guide from its storage clip.



2. Slide the guide under and past the belt. The elastic cord must be under the belt. Then, place the guide over the belt, and insert the two edges of the belt into the slots of the guide.

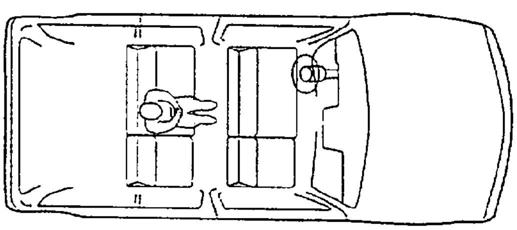


3. Be sure that the belt is not twisted and it lies flat. The elastic cord must be under the belt and the guide on top.

4. Buckle, position and release the safety belt as described in "Rear Seat Outside Passenger Positions" earlier in this section. Make sure that the shoulder belt crosses the shoulder.

To remove and store the comfort guides, squeeze the belt edges together so that you can take them out from the guides. Pull the guide upward to expose its storage clip, and then slide the guide onto the clip. Rotate the guide and clip inward and in between the seatback and the interior body, leaving only the loop of elastic cord exposed.

Center Rear Passenger Position (4-Door Models)



Lap Belt

When you sit in the center rear seating position, you have a lap safety belt which has a retractor.

1. Pick up the latch plate and pull the belt across you. Don't let it get twisted.
2. Push the latch plate into the buckle until it clicks. Pull up on the latch plate to make sure it is secure.
3. Feed the lap belt into the retractor to tighten it.

4. Position and release it the same way as the lap part of a lap-shoulder belt.

   If the belt isn't long enough, see "Safety Belt Extender" at the end of this section. Make sure the release button on the buckle is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.

Children

Everyone in a vehicle needs protection! That includes infants and all children smaller than adult size. In fact, the law in every state in the United States and in every Canadian province says children up to some age must be restrained while in a vehicle.

Smaller Children and Babies

⚠ CAUTION:

Smaller children and babies should always be restrained in a child or infant restraint. The instructions for the restraint will say whether it is the right type and size for your child. A very young child's hip bones are so small that a regular belt might not stay low on the hips, as it should. Instead, the belt will likely be over the child's abdomen. In a crash, the belt would apply force right on the child's abdomen, which could cause serious or fatal injuries. So, be sure that any child small enough for one is always properly restrained in a child or infant restraint.

⚠ CAUTION:

Never hold a baby in your arms while riding in a vehicle. A baby doesn't weigh much -- until a crash. During a crash a baby will become so

CAUTION: (Continued)

CAUTION: (Continued)

heavy you can't hold it. For example, in a crash at only 25 mph (40 km/h), a 12-lb. (5.5 kg) baby will suddenly become a 240-lb. (110 kg) force on your arms. The baby would be almost impossible to hold.

Secure the baby in an infant restraint.

Child Restraints

Be sure the child restraint is designed to be used in a vehicle. If it is, it will have a label saying that it meets Federal Motor Vehicle Safety Standards.

Then follow the instructions for the restraint. You may find these instructions on the restraint itself or in a booklet, or both. These restraints use the belt system in your vehicle, but the child also has to be secured within the restraint to help reduce the chance of personal injury. The instructions that come with the infant or child restraint will show you how to do that.

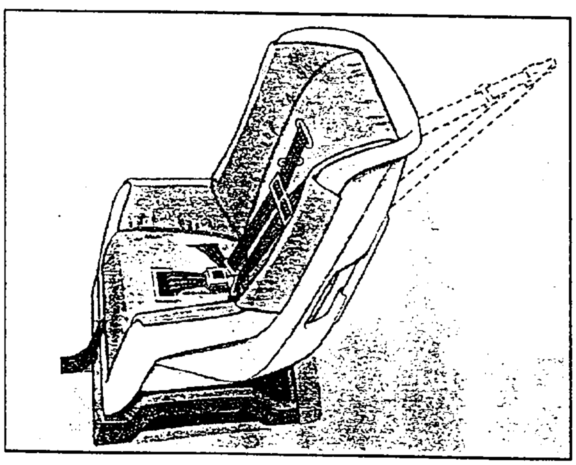
Where to Put the Restraint

Accident statistics show that children are safer if they are restrained in the rear rather than the front seat. We at General Motors therefore recommend that you put your child restraint in a rear seat outside position unless the child is an infant and you're the only adult in the vehicle. In that case, you might want to secure the restraint in the right front seat where you can keep an eye on the baby.

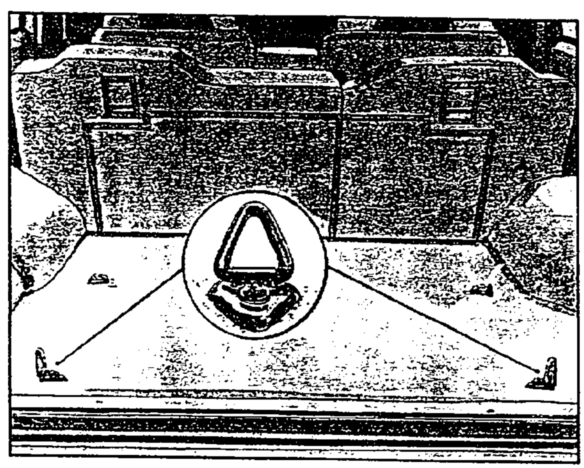
Wherever you install it, be sure to secure the child restraint properly.

Keep in mind that an unsecured child restraint can move around in a collision or sudden stop and injure people in the vehicle. Be sure to properly secure any child restraint in your vehicle -- even when no child is in it.

Top Strap



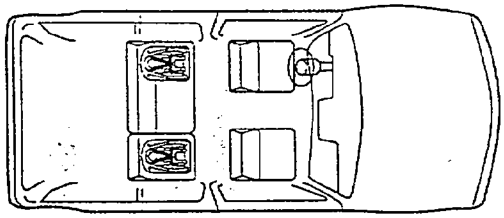
If your child restraint has a top strap, it should be anchored. Anchor brackets for the rear outside seat positions are located on the floor in the cargo area.



Don't use the front set of tie-down brackets. Anchor the top strap to the rearmost bracket on the same side of the vehicle as the child restraint.

Once you have the top strap anchored, you'll be ready to secure the child restraint itself.

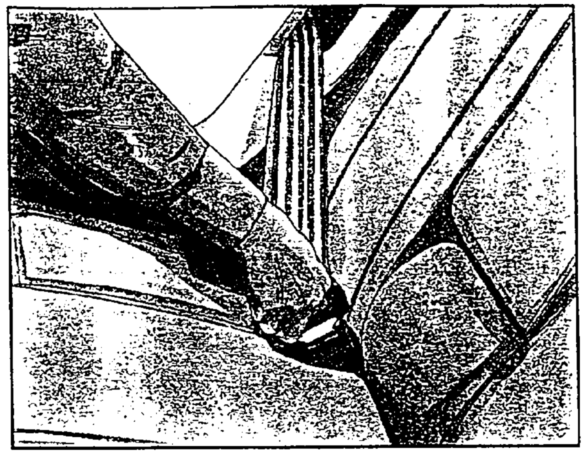
Securing a Child Restraint in a Rear Outside Seat Position



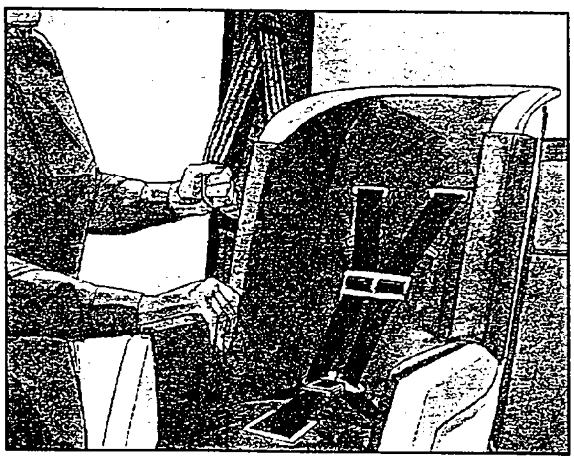
You'll be using the lap-shoulder belt. See the earlier part about the top strap if the child restraint has one.

1. Put the restraint on the seat. Follow the instructions for the child restraint.
2. Secure the child in the child restraint as the instructions say.
3. Pick up the latch plate, and run the lap and shoulder portions of the vehicle's safety belt through or around the restraint. The child restraint instructions will show you how.

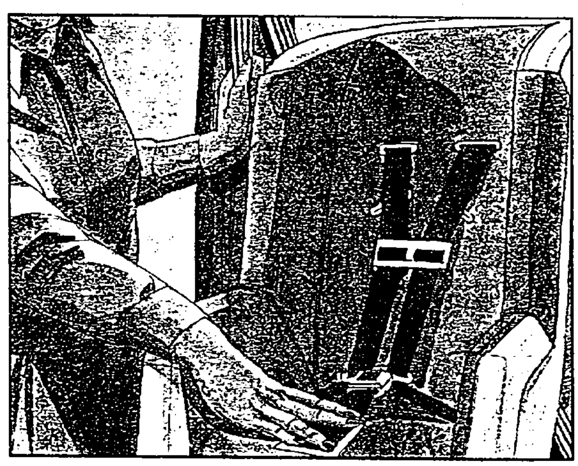
   If the shoulder belt goes in front of the child's face or neck, put it behind the child restraint.



4. Buckle the belt. Make sure the release button is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.



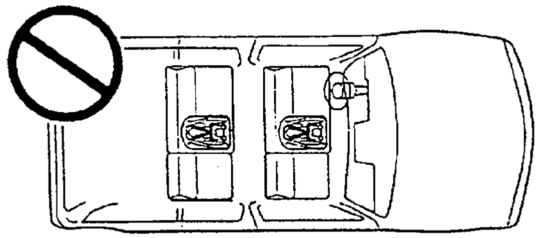
5. Pull the rest of the shoulder belt all the way out of the retractor to set the lock.



6. To tighten the belt, feed the shoulder belt back into the retractor while you push down on the child restraint.
7. Push and pull the child restraint in different directions to be sure it is secure.

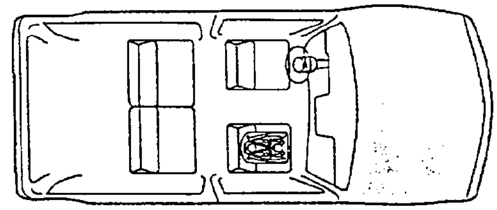
To remove the child restraint, just unbuckle the vehicle's safety belt and let it go back all the way. The safety belt will move freely again and be ready to work for an adult or larger child passenger.

Center Seat Positions (4-Door Models)



Don't use child restraints in these positions. The restraints won't work properly.

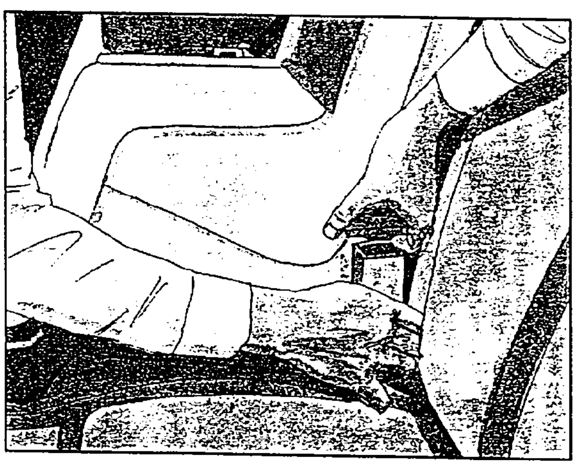
Securing a Child Restraint in the Right Front Seat Position



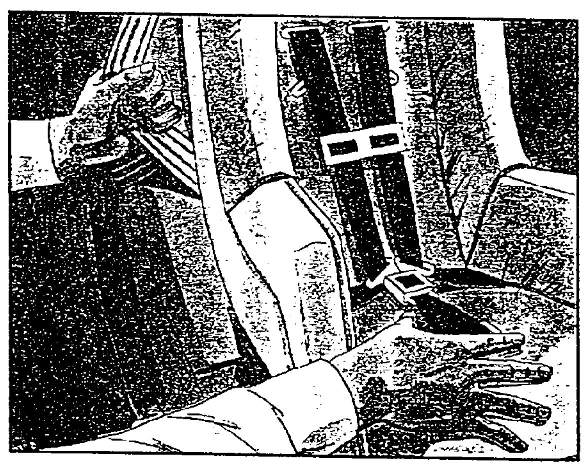
You'll be using the lap-shoulder belt. See the earlier part about the top strap if the child restraint has one.

1. Put the restraint on the seat. Follow the instructions for the child restraint.
2. Secure the child in the child restraint as the instructions say.
3. Pick up the latch plate, and run the lap and shoulder portions of the vehicle's safety belt through or around the restraint. The child restraint instructions will show you how.

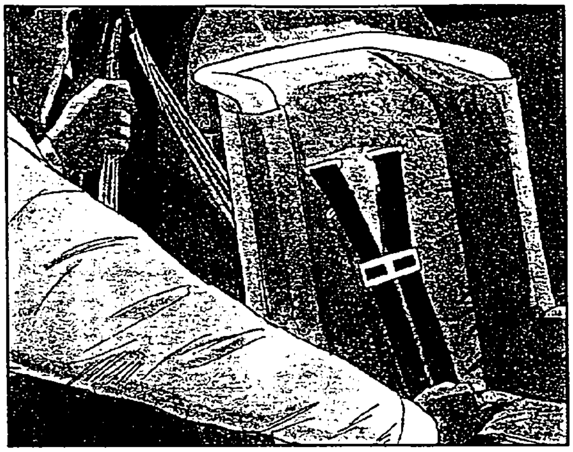
   If the shoulder belt goes in front of the child's face or neck, put it behind the child restraint.



4. Buckle the belt. Make sure the release button is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.



5. Pull the rest of the shoulder belt all the way out of the retractor to set the lock.



6. To tighten the belt, feed the shoulder belt back into the retractor while you push down on the child restraint.

7. Push and pull the child restraint in different directions to be sure it is secure. If you're using a bucket seat, adjust the seat forward until the lap portion of the safety belt holds the restraint firmly. But don't move it any more than needed to tighten the lap belt.

To remove the child restraint, just unbuckle the vehicle's safety belt and let it go back all the way. The safety belt will move freely again and be ready to work for an adult or larger child passenger.

Larger Children

Children who have outgrown child restraints should wear the vehicle's safety belts.

If you have the choice, a child should sit next to a window so the child can wear a lap-shoulder belt and get the additional restraint a shoulder belt can provide.

Accident statistics show that children are safer if they are restrained in the rear seat. But they need to use the safety belts properly.

- Children who aren't buckled up can be thrown out in a crash.
- Children who aren't buckled up can strike other people who are.

⚠ CAUTION:

Never do this.

Here two children are wearing the same belt. The belt can't properly spread the impact forces. In a crash, the two children can be crushed together and seriously injured. A belt must be used by only one person at a time.

Q: **What if a child is wearing a lap-shoulder belt, but the child is so small that the shoulder belt is very close to the child's face or neck?**

A: Move the child toward the center of the vehicle, but be sure that the shoulder belt still is on the child's shoulder, so that in a crash the child's upper body would have the restraint that belts provide. If the child is sitting in a rear outside position of a four-door model, see "Rear Safety Belt Comfort Guides" in the Index. If the child is so small that the shoulder belt is still very close to the child's face or neck, you might want to place the child in a seat that has a lap belt, if your vehicle has one.

⚠ CAUTION:

Never do this.

Here a child is sitting in a seat that has a lap-shoulder belt, but the shoulder part is behind the child. If the child wears the belt in this way, in a crash the child might slide under the belt. The belt's force would then be applied right on the child's abdomen. That could cause serious or fatal injuries.

Wherever the child sits, the lap portion of the belt should be worn low and snug on the hips, just touching the child's thighs. This applies belt force to the child's pelvic bones in a crash.

Safety Belt Extender

If the vehicle's safety belt will fasten around you, you should use it.

But if a safety belt isn't long enough to fasten, your dealer will order you an extender. It's free. When you go in to order it, take the heaviest coat you will wear, so the extender will be long enough for you. The extender will be just for you, and just for the seat in your vehicle that you choose. Don't let someone else use it, and use it only for the seat it is made to fit. To wear it, just attach it to the regular safety belt.

Checking Your Restraint Systems

Now and then, make sure the safety belt reminder light and all your belts, buckles, latch plates, retractors and anchorages are working properly. Look for any other loose or damaged safety belt system parts. If you see anything that might keep a safety belt system from doing its job, have it repaired.

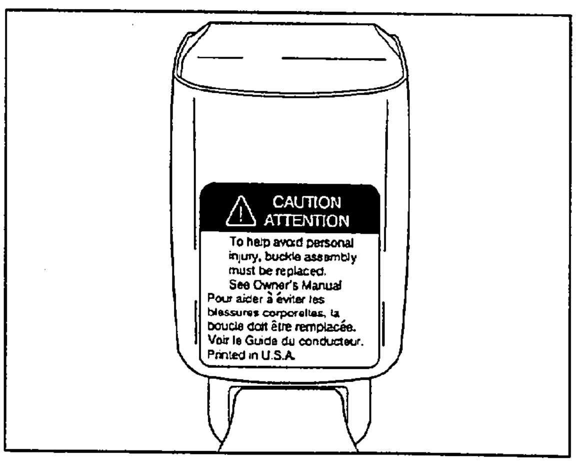
Torn or frayed safety belts may not protect you in a crash. They can rip apart under impact forces. If a belt is torn or frayed, get a new one right away.

Also look for any opened or broken air bag covers, and have them repaired or replaced. (The air bag system does not need regular maintenance.)

Replacing Restraint System Parts After a Crash

If you've had a crash, do you need new belts?

After a very minor collision, nothing may be necessary. But if the belts were stretched, as they would be if worn during a more severe crash, then you need new belts.



If you ever see a label on the driver's safety belt buckle that says to replace the buckle assembly, be sure to do so. Then the new buckle assembly will be there to help protect you in a collision.

If belts are cut or damaged, replace them. Collision damage also may mean you will need to have safety belt or seat parts repaired or replaced. New parts and repairs may be necessary even if the belt wasn't being used at the time of the collision.

If an air bag inflates, you'll need to replace air bag system parts. See the part on the air bag system earlier in this section.